
# WSDOT Truck Parking Study - Final Report

## December 2005

*Prepared for*

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## CITATION

Parametrix. 2005. WSDOT Truck Parking Study - Final Report. Prepared by Parametrix, Bellevue, Washington. December 2005.

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# ACRONYMS

| | |
|---|---|
| CMV | commercial motor vehicle |
| CTSs | commercial truck stop |
| DOT | Department of Transportation |
| Ecology | Department of Ecology |
| EPA | Environmental Protection Agency |
| FHWA | Federal Highway Administration |
| HOS | Hours-Of-Service |
| I-5 | Interstate 5 |
| I-82 | Interstate 82 |
| I-90 | Interstate 90 |
| NHS | National Highway System |
| PPP | Power Projection Platform |
| PRAs | public rest areas |
| TEP | truck electrified parking |
| WCDERC | West Coast Diesel Emissions Reduction Collaborative |
| WSDOT | Washington State Department of Transportation |
| WTA | Washington Trucking Association |

# EXECUTIVE SUMMARY

## WHAT IS THE TRUCK PARKING STUDY ABOUT?

The Washington State Department of Transportation (WSDOT) Truck Parking Study evaluated the adequacy of truck parking along Washington State's primary freight corridors (Interstate 5, Interstate 90 and Interstate 82) and identified several strategies to increase the amount of truck parking in the future.

WSDOT collected data on truck parking demand and utilization at all public rest areas (PRAs) along each of the study corridors. This data, which was collected over several weeks during the daytime and nighttime periods, served as the basis for the truck parking demand and utilization analysis presented in this study. In addition to data gathered at public rest areas, the data collection effort also included a count of the number of trucks that were parked at unofficial truck parking areas, such as weigh stations, on- and off-ramps, shoulders, and chain-up/chain-down areas (collectively referred to as "illegal truck parking" in this study).

The consultant team surveyed commercial truck stops (CTS) along the study corridors to assess the supply and demand of truck parking at private facilities. Survey responses were based on the employee's best estimate of typical facility conditions and were not intended to be statistically significant.

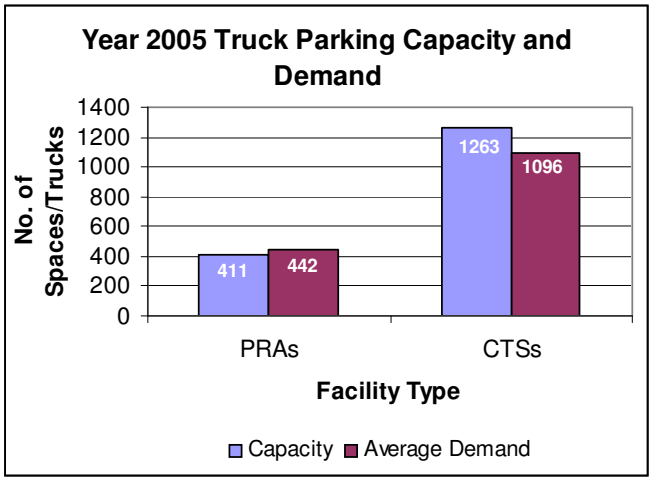
## WHY WAS THE TRUCK PARKING STUDY PERFORMED?

The WSDOT Truck Parking Study was performed primarily for three reasons:

1) The Federal Highway Administration (FHWA) Study of Adequacy of Commercial Truck Parking (June 2002) reported a 14 percent shortage of truck parking within Washington State for PRAs and CTSs combined. Given the conclusions of the FHWA Study and the fact that Washington has not added to the supply of truck parking at public facilities since 1995, WSDOT staff conducted this study to identify where the truck parking shortages are the highest.

2) WSDOT staff and others have also observed trucks parked in a variety of illegal areas such as freeway on- and off- ramps and shoulders. WSDOT wanted to determine the extent of illegal truck parking and if a shortage in truck parking could be the reason.

3) WSDOT is also concerned about roadway safety. A shortage of truck parking contributes to truck drivers driving while fatigued and/or parking illegally, both of which can cause accidents.




WSDOT Truck Parking Study 2005

## HOW DOES THE FHWA STUDY AND WSDOT TRUCK PARKING STUDY COMPARE?

While the FHWA Study and the WSDOT Truck Parking Study both determined that there is an overall truck parking shortage at PRAs, these two studies cannot be directly compared since the scope of the WSDOT Truck Parking Study focused on I-5, I-90, and I-82 while the FHWA Study included all interstates on the National Highway System (NHS) and other non-interstate portions of the NHS with daily truck volumes greater than or equal to 1,000. The FHWA Study concluded that Washington State is 79 percent over capacity at PRAs and 2 percent over capacity at CTSs. The WSDOT Truck Parking Study determined that PRAs along I-5, I-90, and I-82 are over capacity by 8 percent, and CTSs are underutilized by 13 percent.

## WHERE IS THERE A SHORTAGE OF TRUCK PARKING?

As shown in Figure 1, the key areas along the I-5 and I-90 corridors that have truck parking shortages include:

- I-5 northbound and southbound in the greater Puget Sound area (between Marysville/Arlington and Olympia, WA)
- I-5 northbound between Oregon and Olympia, WA
- I-90 westbound between Vantage and Seattle, WA

As shown in Figure 1, I-82 is near, but not over, capacity for nighttime truck parking (on average).

The following five PRAs currently have truck parking demands that consistently exceed capacity:

- Scatter Creek (I-5)
- Maytown (I-5)
- Gee Creek (I-5)
- Smokey Point (I-5)
- Sprague Lake (I-90)

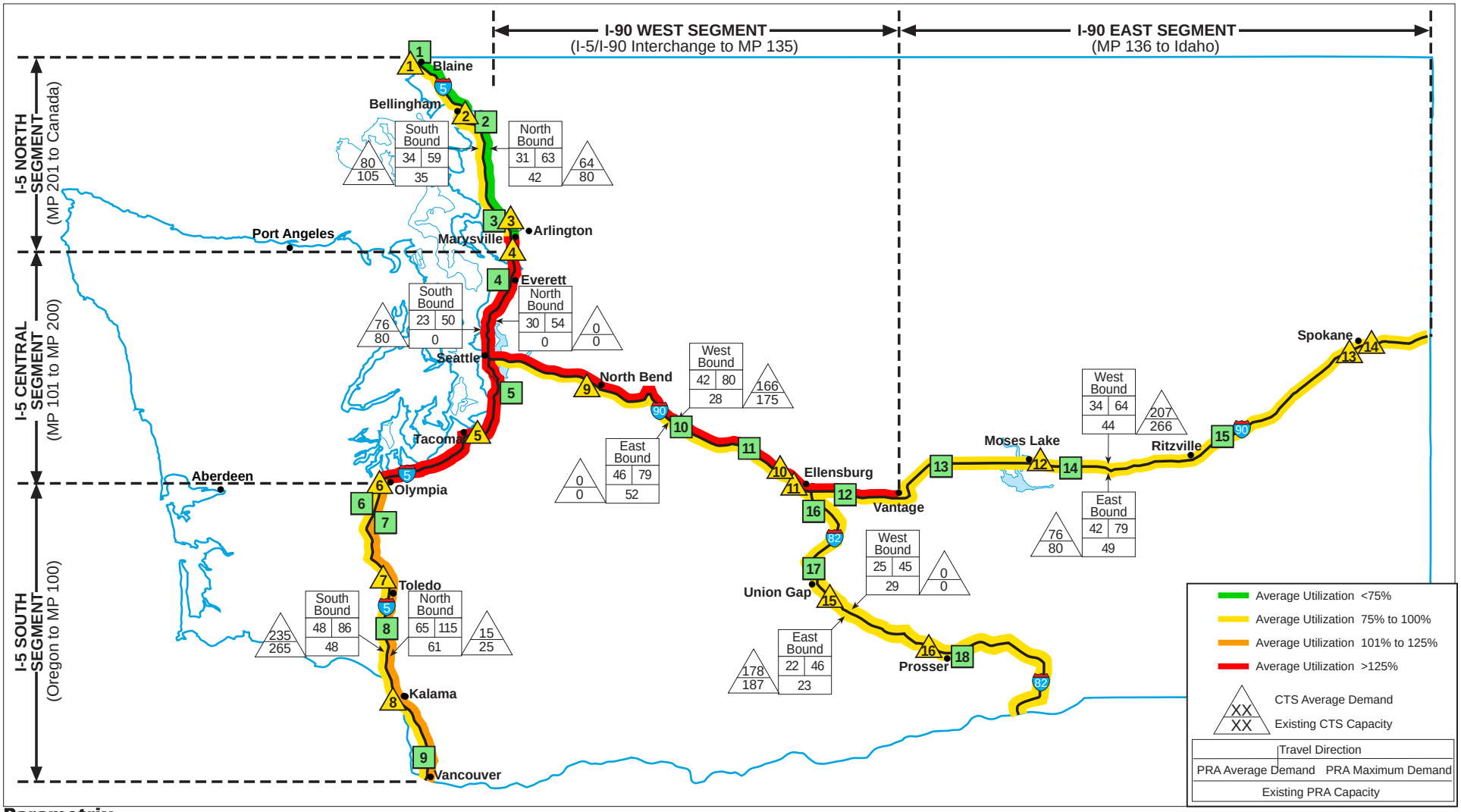
The following 8 CTSs are also regularly at capacity on an average night:

- Flying J Travel Plaza (I-5 near Tacoma)
- Gee Cee's Truck Stop (I-5 near Toledo)
- Seattle East Auto/Truck Plaza (I-90 near North Bend)
- Flying J Travel Plaza (I-90 near Ellensburg)
- Pilot Travel Center (I-90 near Ellensburg)
- Gear Jammers Truck Plaza (I-82 near Union Gap)
- Horse Heaven Hills Travel Plaza (I-82 near Prosser)
- Broadway Truck Stop (I-90 near Spokane)

## HOW MANY MORE TRUCK PARKING SPACES ARE NEEDED?

Depending on the PRA, between 1 and 15 additional truck spaces per night are needed at each facility to meet today's average nighttime trucking demand. When truck parking demand is at its maximum, between 1 and 24 additional truck spaces per night are needed to meet demand at PRAs.

The number of additional truck parking spaces needed at CTSs could not be determined from the data collected.




**Parametrix** 214-1631-048/02/103 9/26/05 (B)

N

Public Rest Area

Commercial Truck Stop

1 Yorky's Truck Stop
2 Yorky's Exxon
3 Arlington Fuel Stop
4 Donna's Truck Stop
5 Flying J Travel Plaza #05060
6 Restover Truck Stop
7 Gee Cee's Truck Stop
8 Rebel Truck Stop
9 Seattle-East Auto/Truck Plaza
10 Flying J Travel Plaza
11 Pilot Travel Center #389
12 Ernie's Truck Stop # 9
13 Broadway Flying J Travel Plaza
14 Broadway Truck Stop - Geiger
15 Gear Jammers Truck Plaza
16 Horse Heaven Hills Travel Plaza

1 Custer
2 Bow Hill
3 Smokey Point
4 Silver Lake
5 SeaTac
6 Maytown
7 Scatter Creek
8 Toutle River
9 Gee Creek
10 Price Creek
11 Indian John Hill
12 Rye Grass
13 Winchester
14 Schrag
15 Sprague Lake
16 MP 7 Scenic View
17 Selah Creek
18 Prosser

**Figure 1**
**Existing Nighttime Truck Parking Utilization and Demand by Segment for Public Rest Areas and Commercial Truck Stops**

## WHAT IS THE EXTENT OF ILLEGAL TRUCK PARKING ALONG THE THREE STUDY CORRIDORS?

The majority of illegal truck parking occurred in the following locations:

- Along the central portion of I-5 between Marysville/Arlington and Olympia, WA with 53 to 104 illegally parked trucks
- Along I-5 between Canada and Marysville/Arlington, WA with 37 to 81 illegally parked trucks
- Along I-5 between Olympia, WA and Oregon with 34 to 96 illegally parked trucks
- Along I-90 between Vantage and Seattle, WA with 39 to 90 illegally parked trucks.

Illegal truck parking was less frequent along I-90 east of Vantage (19 to 50 trucks) and along I-82 (12 to 39 trucks).

For all of the study corridors, illegal truck parking was most frequently observed at areas such as weigh stations and chain-up/-down areas, rather than ramps and shoulders.

## WHY DO TRUCKS PARK ILLEGALLY?

Illegal truck parking occurs despite available capacity at nearby PRAs or CTSs. Based on information provided in other studies and survey results from WSDOT and the Washington Trucking Association, factors that could contribute to illegal truck parking are:

- Drivers are unfamiliar with the area.
- Drivers want to get as close as possible to their final destination.
- Drivers want to maximize their drive times within the Hours-Of-Service regulations.
- Drivers find ramps and shoulders more convenient than PRAs and CTSs.
- Many of today's trucks are longer than the parking spaces at PRAs that were designed to accommodate shorter trucks.

## HOW MUCH WILL TRUCK PARKING DEMAND INCREASE IN THE FUTURE?

The demand for truck parking is expected to increase substantially in the future. Truck trips have increased by 94 percent along the I-5 corridor and by 72 percent along the I-90 corridor between 1993 and 2003 (Strategic Freight Transportation Analysis 2003).

The FHWA Study of Adequacy of Commercial Truck Parking Facilities (June 2002) estimated Washington's 20-year forecasted annual increase in truck parking demand to be 2.1 percent. After reviewing a variety of data specific to Washington State, the annual increase in truck parking demand in the WSDOT Truck Parking Study was estimated to be 3.5 percent along I-5 and I-82 and 4.0 percent along I-90. Therefore, if no additional truck parking is added, the existing truck parking shortages will continue to worsen. Both truck driver and other driver safety will be increasingly compromised as tired truck drivers will continue to drive while they are fatigued and/or to park illegally.

## HOW CAN WSDOT INCREASE TRUCK PARKING CAPACITY ALONG I-5, I-90 AND I-82?

Several strategies to increase the amount of truck parking on I-5, I-90, and I-82 were identified and evaluated. If all of the strategies were implemented, between 700 and 1,825 total parking spaces could potentially be added to the study corridors.

- **Strategy 1.** Create new legal truck parking through new PRA construction, reconfiguring existing PRAs, or creating new truck-only facilities. This strategy could potentially add between 60 and 470 truck parking spaces and would cost between $30,000 and $75,000 per new space added.
- **Strategy 2.** Legalize truck parking at non-Port of Entry weigh stations and expand these facilities to accommodate extra truck parking capacity. This strategy could potentially add between 150 and 280 truck parking spaces and would cost approximately $67,000 per new space added.
- **Strategy 3.** Implement public-private partnerships that would encourage new development of CTSs where PRAs are significantly over capacity. This strategy could potentially add between 30 and 180 truck parking spaces.
- **Strategy 4.** Implement public-private partnerships that would provide financial aid for increasing capacity at existing CTSs. This strategy could potentially add between 0 and 100 truck parking spaces.
- **Strategy 5.** Develop shared-use parking agreements with existing parking lot owners, such as nighttime-only truck parking at large commercial parking lots and public park and rides. The amount of new truck parking spaces added from this strategy would depend on the number of participating parking lot owners and the area of each site. However, it is estimated that this strategy could add 200+ parking spaces.

Other strategies that would not add truck parking capacity, but could more evenly distribute truck parking along the study corridors, were also evaluated.

- **Strategy 6.** Implement an information and communication program that provides current parking conditions at PRAs and CTSs
- **Strategy 7.** Clearly designate truck parking from recreational vehicle parking at all PRAs.
- **Strategy 8.** Increase enforcement of existing truck parking laws.

# 1. INTRODUCTION

## 1.1 PURPOSE AND NEED

The WSDOT Truck Parking Study evaluated the current adequacy of truck parking along the following long haul truck corridors in Washington State: Interstate 5, Interstate 90 and Interstate 82.

- Interstate 5 (I-5) is the primary north-south freight route connecting California and Canada
- Interstate 90 (I-90) is the principal east-west freight route extending from Washington State through several states and cities in the northern United States to Massachusetts
- Interstate 82 (I-82) is the main freight route connecting central Washington to Northeast Oregon, and also provides a connection to central Idaho.

The WSDOT Truck Parking Study also forecasted truck parking demand to the year 2030 and identified several strategies to increase the amount of truck parking in the future.

WSDOT collected data on the truck parking demand and utilization at all public rest areas (PRAs) along each of the study corridors. This data, which was collected over several weeks during the daytime and nighttime periods, and served as the basis for the truck parking demand and utilization analysis presented in this study. In addition to data gathered at public rest areas, the data collection effort also included a count of the number of trucks that were parked at unofficial truck parking areas, such as weigh stations, on- and off-ramps, shoulders, and chain-up/chain-down areas (collectively referred to as "illegal truck parking" in this study). This data allowed the project team to determine where truck parking shortages and/or surpluses currently exist along each study corridor.

The consultant team surveyed commercial truck stop (CTS) employees along the study corridors to assess the supply and demand of truck parking at private facilities. Survey responses were based on the employee's best estimate of typical facility conditions and were not intended to be statistically significant.

The Truck Parking Study was performed primarily for three reasons:

1) The Federal Highway Administration (FHWA) Study of Adequacy of Commercial Truck Parking (June 2002) reported a 14 percent shortage of truck parking within Washington State for public rest areas and commercial truck stops combined. The truck parking shortage at public rest areas was 79 percent while the truck parking shortage at commercial truck stops was 2 percent. WSDOT staff conducted this study to identify specific locations where the truck parking shortage was the highest
2) WSDOT staff have also observed trucks parked in a variety of illegal areas such as freeway on- and off- ramps and shoulders to determine how much illegal truck parking is occurring and if a shortage in truck parking could be the reason.
3) WSDOT is also concerned about roadway safety. A shortage of truck parking contributes to truck drivers driving while fatigued and/or parking illegally, both of which can cause accidents.

This report builds on and summarizes the key points described in the *Data Collection Efforts* (Appendix A) and *Truck Parking on I-5, I-90, and I-82 in Washington State* (Appendix B) technical memorandums, which provide greater detail on the findings and analysis methodologies summarized in this final report.

## 1.2 REASONS FOR INCREASED TRUCK PARKING DEMAND

### 1.2.1 Freight Increases in Washington State

According to the draft Freight Report for the 2005 Washington Transportation Plan Update (WSDOT 2005), truck trips along the I-5 corridor increased 94 percent between 1993 and 2003. During the same time period, truck trips on I-90 increased 72 percent. Freight volumes in Washington are expected to increase another 80 percent by 2020. As described in the draft Freight Report, there are a number of forces driving increases in freight demand, including:

- Washington serves as a premier connection between Asia and the United States; Alaska and the lower 48 states; and Canada and the west coast.
- Washington's retail, wholesale, and business service sectors support 1,690,000 jobs and account for $240.3 billion (58 percent) of the state's total revenue. Using trucks to transport goods from distribution centers to stores and businesses is the most common distribution mode.
- Increased traffic congestion that forces companies to put more trucks on the roads to ensure on-time deliveries.

### 1.2.2 Hours-Of-Service Regulations

In 2003, the Hours-Of-Service (HOS) regulations allowed drivers using the sleeper berth to split their 10 off-duty hours into two portions, provided neither portion was less than 2 hours long (e.g., two 5-hour breaks). In 2005, the Federal Motor Carrier Safety Administration revised the HOS regulations. Under the 2005 HOS regulations, drivers using the sleeper berth are still allowed to split their 10 off-duty hours; however, 8 of those 10 hours must be consecutively spent in the sleeper berth, and the other 2 off-duty hours must also be consecutive (i.e., one 8-hour break and one 2-hour break). This change in HOS regulations requires commercial motor vehicle (CMV) drivers to get a full, uninterrupted 8-hour sleep once the maximum number of driving hours is reached. As a result of the 2005 HOS rules, truck parking demand at commercial truck stops (CTSs) and PRAs is expected to increase where legal truck parking is currently insufficient.

Changes to HOS regulations, effective October 1, 2005, are summarized in Table 1 below.

**Table 1. Hours-of-Service Regulations for Property-Carrying Commercial Motor Vehicles**

| 2003 Rule<br>Compliance through 9/30/05 | 2005 Rule<br>Compliance On and After 10/1/05 |
|---|---|
| May drive a maximum of 11 hours after 10 consecutive hours off duty. | NO CHANGE |
| May not drive beyond the 14th hour after coming on duty, following 10 consecutive hours off duty. | NO CHANGE |
| May not drive after 60/70 hours on duty in 7/8 consecutive days. | NO CHANGE |
| A driver may restart a 7/8 consecutive day period after taking 34 or more consecutive hours off duty. | |
| CMV drivers using a sleeper berth must take 10 hours off duty, but may split sleeper-berth time into two periods, provided neither is less than 2 hours. | CMV drivers using the sleeper berth provision must take at least 8 consecutive hours in the sleeper berth, plus 2 consecutive hours either in the sleeper berth, off duty, or any combination of the two. |

# 2. ANALYSIS APPROACH

## 2.1 DATA COLLECTION

Data collected from commercial truck stops (CTSs) and public rest areas (PRAs) were summarized and analyzed at the corridor, segment, and facility levels. The I-5 and I-90 corridors were divided into segments since both corridors are relatively long, exhibit distinct geographical characteristics, and have multiple PRAs. I-5 was divided into the south segment (Oregon border to milepost [MP] 100 near Tumwater); central segment (MP 101 to MP 200 near Marysville) and the north segment (MP 201 to Canadian border). I-90 was divided into the west segment (I-5/I-90 interchange to MP 135 near Vantage) and the east segment (MP 136 to the Idaho border). I-82 was not divided into segments since this corridor only has three PRAs and is relatively short compared to I-5 and I-90.

### 2.1.1 Commercial Truck Stop Data Collection

Data from CTSs were collected along the Washington State Department of Transportation (WSDOT) truck parking study corridors to evaluate the existing supply and demand at private truck parking facilities. Data were collected in May 2005 by telephone survey, and the survey locations were determined using a list of locations identified by WSDOT supplemented with internet and telephone book searches. In addition to collecting truck parking space and demand information, facility attributes that could affect the driver's decision to park overnight at these facilities (services and amenities and fees) were also collected. Truck stops that did not offer overnight truck parking on a regular basis were removed from this data set. The survey was not exhaustive of all CTSs along the study corridors and the data were not intended to be statistically significant.

As shown previously in Figure 1 in the Executive Summary and below in Table 2, a total of 16 CTSs were identified within the study corridors. The *Direction* classification was added in order to report the CTS data similarly to the PRA data. For example, on I-5, if the CTS was located on the west side of the freeway, its direction is shown as southbound.

**Table 2. Commercial Truck Stops Located Along I-5, I-90, and I-82**

| City | Truck Stop Name | Exit | Direction |
|---|---|---|---|
| **Interstate 5** | | | |
| Blaine | Yorky's Truck Stop | 275 | Northbound |
| Bellingham | Yorky's Exxon | 250 | Southbound |
| Arlington | Arlington Fuel Stop | 208 | Southbound |
| Marysville | Donna's Truck Stop | 202 | Southbound |
| Tacoma | Flying J Travel Plaza #05060 | 136 | Southbound |
| Olympia | Restover Truck Stop | 99 | Southbound |
| Toledo | Gee Cee's Truck Stop | 57 | Southbound |
| Kalama | Rebel Truck Stop | 27 | Northbound |
| **Interstate 90** | | | |
| North Bend | Seattle-East Auto/Truck Plaza | 34 | Westbound |
| Ellensburg | Flying J Travel Plaza | 109 | Eastbound |
| Ellensburg | Pilot Travel Center #389 | 109 | Westbound |
| Moses Lake | Ernie's Truck Stop # 9 | 179 | Westbound |
| Ritzville | Jake's Exxon | 220 | Westbound |
| Spokane | Broadway Truck Stop - Geiger | 276 | Westbound |
| Spokane | Broadway Flying J Travel Plaza | 286 | Westbound |

**Table 2. Commercial Truck Stops Located Along I-5, I-90, and I-82 (continued)**

| City | Truck Stop Name | Exit | Direction |
|---|---|---|---|
| **Interstate 82** | | | |
| Union Gap | Gear Jammers Truck Plaza | 36 | Eastbound |
| Prosser | Horse Heaven Hills Travel Plaza | 80 | Eastbound |

## 2.1.2 Public Rest Area Data Collection

In addition to the CTS surveys, truck parking was recorded at 18 PRAs to determine whether current PRA capacity is sufficiently meeting existing truck parking demand. PRA data were recorded during the daytime (7:00 AM to 5:30 PM) and nighttime (8:00 PM to 6:00 AM) periods between March and July 2005. The data were summarized at the corridor, segment, and facility levels. Truck parking data were also collected at other locations along the study corridors, such as weigh stations, on- and off-ramps, shoulders, and chain-up areas, which are collectively referred to in this study as illegal truck parking. Recording the number of trucks parked at these locations provided additional information about truck parking demand in terms of volume and location.

Parking demand was also summarized separately for each travel direction, as PRAs are generally only accessible in one travel direction. In other words, PRAs are located immediately adjacent to the highway, and only vehicles traveling in that direction can directly access the facility.

The average and maximum truck parking demand was calculated to provide information on the observed average and peak usage. Each of the PRAs was surveyed numerous times throughout the data collection period, and the average demand represents the average number of parked trucks observed over the data collection period. The maximum demand is the highest observed number of trucks parked (i.e., one data point) and is referred to as maximum demand or peak demand throughout this discussion. The 18 PRAs included in this analysis are described in Table 3 and shown on Figure 1.

The highest truck parking demand for both CTSs and PRAs occurred during the nighttime hours (6:00 PM to 6:00 AM) and was therefore defined as the peak period. Additional detail on the data collected for this report is provided in the *Data Collection Efforts* (Appendix A) and *Truck Parking on I-5, I-90, and I-82 in Washington State* (Appendix B) technical memorandums.

**Table 3. Public Rest Areas Located Along I-5, I-90, and I-82**

| Public Rest Area Name | City | Milepost |
|---|---|---|
| **Interstate 5** | | |
| Gee Creek | Ridgefield | 11 |
| Toutle River | Castle Rock | 54 |
| Scatter Creek | Tumwater | 90 |
| Maytown | Tumwater | 93 |
| SeaTac | SeaTac | 140 |
| Silver Lake | Everett | 188 |
| Smokey Point | Arlington | 207 |
| Bow Hill | Burlington | 238 |
| Custer | Ferndale | 267 |

**Table 3. Public Rest Areas Located Along I-5, I-90, and I-82 (continued)**

| Public Rest Area Name | City | Milepost |
|---|---|---|
| **Interstate 90** | | |
| Price Creek | Snoqualmie | 61 |
| Indian John Hill | Cle Elum | 89 |
| Rye Grass | Ellensburg | 125 |
| Winchester | George | 161 |
| Schrag | Moses Lake | 198 |
| Sprague Lake | Sprague | 241 |
| **Interstate 82** | | |
| Scenic View | Kennewick | 7 |
| Selah Creek | Selah | 24 |
| Prosser | Prosser | 80 |

Note: Nearest city shown for reference only; several facilities are located in unincorporated areas.

## 2.1.3 Air Quality and Idle Reduction Options

The Washington State Legislature requires WSDOT, in conjunction with the Department of the Ecology (Ecology), to investigate methodologies that could reduce emissions from commercial trucks. The benefits and costs of technologies and programs aimed at reducing truck idling emissions are currently being evaluated by Ecology and a fact sheet discussing their efforts is provided in Appendix F. The following discussion outlines the preliminary research that WSDOT has undertaken as part of the Truck Parking Study to investigate options for reducing truck idling diesel emissions.

### BACKGROUND

The West Coast Diesel Emissions Reduction Collaborative (WCDERC) consists of federal government agencies (U.S., Canada, and Mexico), state and local governments, and non-profit and private sector partners from California, Oregon, Washington, Alaska and British Columbia. According to the WCDERC, idling commercial long-haul trucks consume nearly a billion gallons of diesel fuel each year in the United States (WCDERC 2005). The U.S. Environmental Protection Agency (EPA) (2004) and Oak Ridge National Laboratory estimated that an average of 536 pounds of NOx, 15 pounds of particulate matter, and 37,600 pounds of $CO_2$ are emitted annually by the typical long-haul truck from idling alone. These emissions reduce local air quality and add to green house gas effects.

Due to the environmental implications associated with commercial truck idling, the WCDERC is studying several projects that would reduce truck idling. One of these projects looks toward truck electrified parking (TEP) technology as a solution for reducing emissions from truck idling. TEP technology allows truckers to shut off their engine and maintain power to generate cab amenities (heating, ventilation, air conditioning, refrigeration, television) through an outside power source. While TEP technology would substantially reduce idling emissions, implementation would require changes to truck stop infrastructure, commercial truck retrofitting, and education and outreach to the trucking industry.

### TRUCK IDLING REDUCTION TECHNOLOGIES

Table 4 summarizes the various truck idling reduction technologies that are currently available.

**Table 4. Truck Idling Reduction Technologies Comparison**

| Technology | Function | Benefits | Drawbacks | Technology Status |
|---|---|---|---|---|
| Direct-fired Heater | Heating for cabs/sleeper and/or engine. | Can be used at any stop for heating. Small and lightweight. | Cannot provide cooling. Requires battery power and may be unreliable when not equipped with automatic engine starting. | Commercial |
| Auxiliary power unit | Heating and air conditioning of cab/sleeper, heat for engine, and power for auxiliaries. | Can be used at any stop for heating, cooling, and auxiliaries. Recovers waste heat for space heating. Serves as survival system. | Heavier and larger than direct-fired heater. May require separate sleeper air conditioner. | Commercial |
| Thermal Storage | Heating and air-conditioning for cab/sleeper only. | Driver comfort. | Does not heat engine. Requires relatively large space for storage medium. Performance dependent on truck use. | At or near-commercial. Commercial in other applications. |
| Direct heat with thermal storage cooling | Heating and air-conditioning of cab/sleeper and heat for engine. | Can be used at any stop for heating and cooling. | Requires battery power. | Commercial |
| Truck electrified parking (TEP) | Provides electricity for heating, air-conditioning, and auxiliaries. | Provides power for heating and cooling and auxiliaries. | Limited choice of over-night location. Requires separate sleeper air conditioner and electrically powered heater. Requires infrastructure at the truck stop. | At or near commercial. |
| Automatic Start/Stop systems | Automatically starts or stops the main tractor engine based on engine computer module settings. | Reduces engine idle time while maintaining engine oil temperature and battery voltage. May also be set to monitor and maintain cab temperature. | Limited use in extreme temperatures. May need additional deep cycle batteries. | Commercial |
| Battery Packs | Provides power from battery packs to directly operate HVAC system or to circulate engine coolant for heating cab. | Provides cab heating and cooling and may run other amenities for short periods of time. | Limited amount of time it can be run before batteries need recharging. Added space and weight. | Commercial |

This table was taken from the Analysis of Technology Options to Reduce the fuel Consumption of Idling Trucks – U.S. Dept of Energy, June 2000, and supplemented with information from the EPA SmartWay Transport Partnership idling reduction web page (http://www.epa.gov/otaq/smartway/idling.htm)

## NON-TECHNOLOGY OPTIONS FOR REDUCING IDLING

### Behavioral Change

Behavioral Change is the simplest route to reduce idling. Education and driver incentives play an important role in behavioral change. Informing the driver or operator about the fuel consumption, emissions, and the potential health risks plays an important part in changing behavior. Another powerful tool in changing driver behavior is offering financial incentives to reduce idling. Many large trucking companies already offer these incentives and they have reported success in reducing idling times below national averages. Simply instituting a company policy to not idle has not proven effective in changing behavior and no company policy is going to deter a driver or operator from idling in extreme weather conditions. Education and incentives provide a partial solution to deter idling. Often, the need for climate control requires implementing an idle reduction technology.

### State and Local Anti-idling Laws

In about half the country, state and local jurisdictions have passed laws or ordinances limiting a vehicle's idling time. Many of these laws, however, differ from one state to another in terms of the engine idle time limit and exemptions (e.g., temperature). This patchwork of anti-idling laws creates confusion and a general lack of understanding among the nation's truck drivers. The U.S. EPA is committed to working with states and the trucking industry to establish guidelines for improved anti-idling laws.

In February 2003, EPA developed a list of state and local anti-idling laws (http://www.epa.gov/otaq/smartway/documents/statelaws.pdf) (EPA 420-S-03-002, February 2003). Since the publication of this document, new state and local anti-idling laws may have been passed and existing laws may have been modified. American Transportation Research Institute's provides a more current list of laws.
(http://atri-online.org/research/results/idling_chart.pdf)

In an effort to create consistent laws across the country, EPA hosted a series of state/industry workshops around the country. The purpose of the workshops was to develop a model state or local idling law for states or counties that wish to regulate idling. EPA convened representatives from state air pollution control agencies and trucking associations, as well as truck drivers. The goal was to develop a consensus approach to idle control policies and eliminate inconsistencies that are confusing to the trucking industry. The model law should be completed and available early next year.

EPA is not planning any Federal laws with respect to idling times and is not encouraging states to adopt or to not adopt idling laws. Rather, EPA is developing this model law at the request of both states and trucking companies to bring more consistency to the patchwork of existing laws and to ensure that laws are reasonable for feasible industry compliance.

## CURRENT PLANS

Ecology is currently working on several truck idling reduction projects in Washington State at commercial truck stops that will run for the next several years. The outcome of these studies and pilot programs will verify the benefits and costs of TEP technology. The WSDOT is also working with the Department of Ecology on diesel reduction alternatives that WSDOT can implement. Once Ecology finalizes the alternative priority list, WSDOT will work with Ecology on the most practical alternative(s) for WSDOT to implement.

## 2.2 FORECAST METHODOLOGY

Future truck parking demand was estimated by multiplying existing truck parking demand by a growth factor developed for the study corridors (I-5, I-90, and I-82). Future truck parking demand was estimated in the year 2030 to be consistent with the long-range planning forecast year used in transportation planning efforts throughout the state. The growth factors for the study corridors were developed based on:

- Washington State annual truck growth rates observed in WSDOT historical traffic volume data.
- The Strategic Freight Transportation Analysis (2003) and Eastern Washington Intermodal Transportation Study (1993) truck volume databases.
- WSDOT's Weigh-In-Motion recorders for truck traffic volumes.
- Freight forecast estimates for the Port of Seattle and Port of Tacoma.
- The Federal Highway Administration (FHWA) Study of Adequacy of Commercial Truck Parking Facilities (FHWA June 2002).
- The draft Freight Report for the 2005 Washington Transportation Plan Update (WSDOT 2005)

After comparing the data, truck parking demand was estimated to grow annually at a compounded rate of 3.5 percent on I-5, 4.0 percent on I-90, and 3.5 percent on I-82 (Table 5). Additional detail on how these growth factors were developed is provided in the technical memorandum in Appendix B, *Truck Parking on I-5, I-90, and I-82 in Washington State*.

**Table 5. Forecasted Annual Growth Rates Between 2005 and 2030 on the Study Corridors**

| Corridor | Annual Percent Growth |
|---|---|
| I-5 | 3.50 |
| I-90 | 4.00 |
| I-82 | 3.50 |

Note: These growth rates were compounded annually to develop year 2030 truck parking demand.

# 3. EXISTING TRUCK PARKING CONDITIONS

## 3.1 EXISTING TRUCK PARKING DEMAND AND UTILIZATION BY SEGMENT

Figure 1 in the Executive Summary summarizes the existing average and maximum truck parking demand and utilization by corridor segment during the peak (nighttime) period. The direction of travel for each segment is color coded based on average utilization for the PRAs. CTS capacity and demand for each segment is also shown.

As shown in Figure 1, the central segment of I-5 between Marysville and Tumwater does not contain any legal truck parking at public rest areas (PRAs). There is one CTS (Flying J Travel Plaza) in this segment and it has 80 truck parking spaces. On average, the Flying J is near or at capacity for nighttime parking.

Therefore, most of the truck parking demand for this segment, occurred along roadsides, ramps, weigh stations and other areas without designated truck parking, and is considered illegal truck parking. As such, utilization for this segment cannot be calculated. However, the data collection effort showed an average parking demand of 23 trucks and a maximum demand of 50 trucks for southbound traffic, and an average demand of 30 trucks and maximum demand of 54 trucks for northbound traffic.

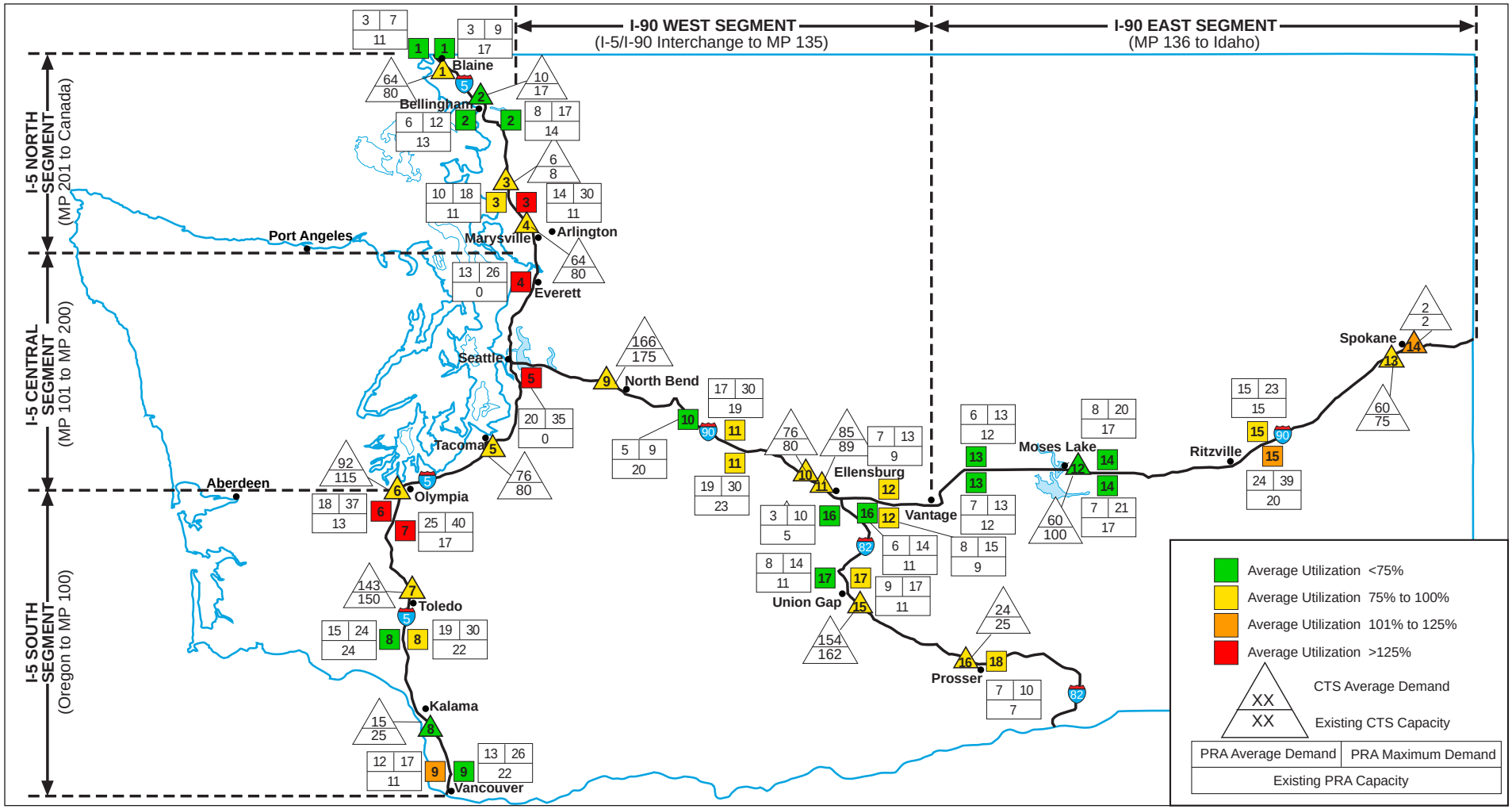
Using Figure 1, Table 6 summarizes the corridor segments that currently have truck parking utilization rates over 100 percent.

**Table 6. Year 2005 Corridor Segments Over Capacity**

| Corridor | Segment | Direction | Average Utilization (Number of Trucks Over Capacity) | Maximum Utilization (Number of Trucks Over Capacity) |
|---|---|---|---|---|
| I-5 | North | Southbound | 137% (13 trucks) | 246% (51 trucks) |
| I-90 | West | Westbound | 121% (6 trucks) | 229% (36 trucks) |
| I-5 | South | Northbound | 107% (4 trucks) | 186% (54 trucks) |

## 3.2 EXISTING TRUCK PARKING DEMAND AND UTILIZATION BY FACILITY

Figure 2 illustrates the existing truck parking demand and utilization at each PRA and CTS during the peak (nighttime) period. PRAs with separate parking areas for each travel direction are shown on both sides of the corridor. The Prosser PRA on I-82 is bidirectional and both eastbound and westbound traffic access and share the same truck parking area. Accordingly, the Prosser PRA is represented by one symbol located on the mainline. Silver Lake, SeaTac, Maytown, and Price Creek are unidirectional PRAs and are shown on the side of the corridor that they serve. Each PRA is color coded based on average utilization. The average and maximum truck parking demand as well as the facility's capacity is also shown. Table 7 summarizes the PRAs that currently have truck parking utilization rates over 150 percent.




**Parametrix** 214-1631-048/02/103 10/17/05 (B)

N

Public Rest Area

Commercial Truck Stop

1 Yorky's Truck Stop
2 Yorky's Exxon
3 Arlington Fuel Stop
4 Donna's Truck Stop
5 Flying J Travel Plaza #05060
6 Restover Truck Stop
7 Gee Cee's Truck Stop
8 Rebel Truck Stop
9 Seattle-East Auto/Truck Plaza
10 Flying J Travel Plaza
11 Pilot Travel Center #389
12 Ernie's Truck Stop # 9
13 Broadway Flying J Travel Plaza
14 Broadway Truck Stop - Geiger
15 Gear Jammers Truck Plaza
16 Horse Heaven Hills Travel Plaza

1 Custer
2 Bow Hill
3 Smokey Point
4 Silver Lake
5 SeaTac
6 Maytown
7 Scatter Creek
8 Toutle River
9 Gee Creek
10 Price Creek
11 Indian John Hill
12 Rye Grass
13 Winchester
14 Schrag
15 Sprague Lake
16 MP 7 Scenic View
17 Selah Creek
18 Prosser

**Figure 2**
**Existing Nighttime Truck Parking Utilization and Demand at Public Rest Areas and Commercial Truck Stops**

**Table 7. Year 2005 Public Rest Areas Over Capacity**

| Public Rest Area | Corridor/Direction | Segment | Average Utilization (Number of Trucks Over Capacity) | Maximum Utilization (Number of Trucks Over Capacity) |
|---|---|---|---|---|
| Scatter Creek | I-5 Northbound | South | 147% (8 trucks) | 235% (23 trucks) |
| Maytown | I-5 Southbound | South | 138% (5 trucks) | 285% (24 trucks) |
| Smokey Point | I-5 Northbound | North | 127% (3 trucks) | 273% (19 trucks) |
| Sprague Lake | I-90 Eastbound | East | 120% (4 trucks) | 195% (19 trucks) |
| Gee Creek | I-5 Southbound | South | 109% (1 trucks) | 155% (6 trucks) |

These findings are similar to the Washington Trucking Association's (WTA's) member survey that was conducted in winter of 2004. The WTA survey asked the trucking companies to list, in order of importance, the top five rest areas that were most in need of additional truck parking. The WTA survey results were:

- Indian John Hill (westbound I-90)
- Gee Creek (southbound I-5)
- Maytown (southbound I-5)
- Scatter Creek (northbound I-5)
- Tied: Gee Creek (northbound I-5) and Smokey Point (northbound I-5)

As previously described, there is no legal truck parking provided at PRAs within the central segment of I-5 so accordingly, utilization rates cannot be calculated. Both the Silver Lake (southbound I-5) and SeaTac (northbound I-5) PRAs were constructed in conjunction with Washington State Patrol weigh stations and do not have legal truck parking. The weigh station at Silver Lake experienced an average demand of 13 trucks and maximum demand of 26 trucks. The truck parking demand at the SeaTac weigh station was 20 trucks on average and had a maximum demand of 35 trucks.

As mentioned previously in the Executive Summary, there are 8 CTSs that are regularly at capacity every night. As shown in Table 8 below, these facilities are essentially at capacity.

**Table 8. CTSs Currently At Capacity**

| Commercial Truck Stop | Corridor/Direction | Segment | Average Utilization |
|---|---|---|---|
| Flying J Travel Plaza (Tacoma) | I-5 Southbound | Central | 95% |
| Gee Cee's Truck Stop | I-5 Southbound | South | 95% |
| Seattle East Auto/Truck Plaza | I-90 Westbound | West | 95% |
| Flying J Travel Plaza (Ellensburg) | I-90 Eastbound | West | 95% |
| Pilot Travel Center | I-90 Westbound | West | 95% |
| Broadway Flying J Travel Plaza (Spokane) | I-90 Westbound | East | 95% |
| Horse Heaven Hills Travel Plaza | I-82 Eastbound | NA | 95% |
| Gear Jammers Truck Plaza | I-82 Eastbound | NA | 95% |

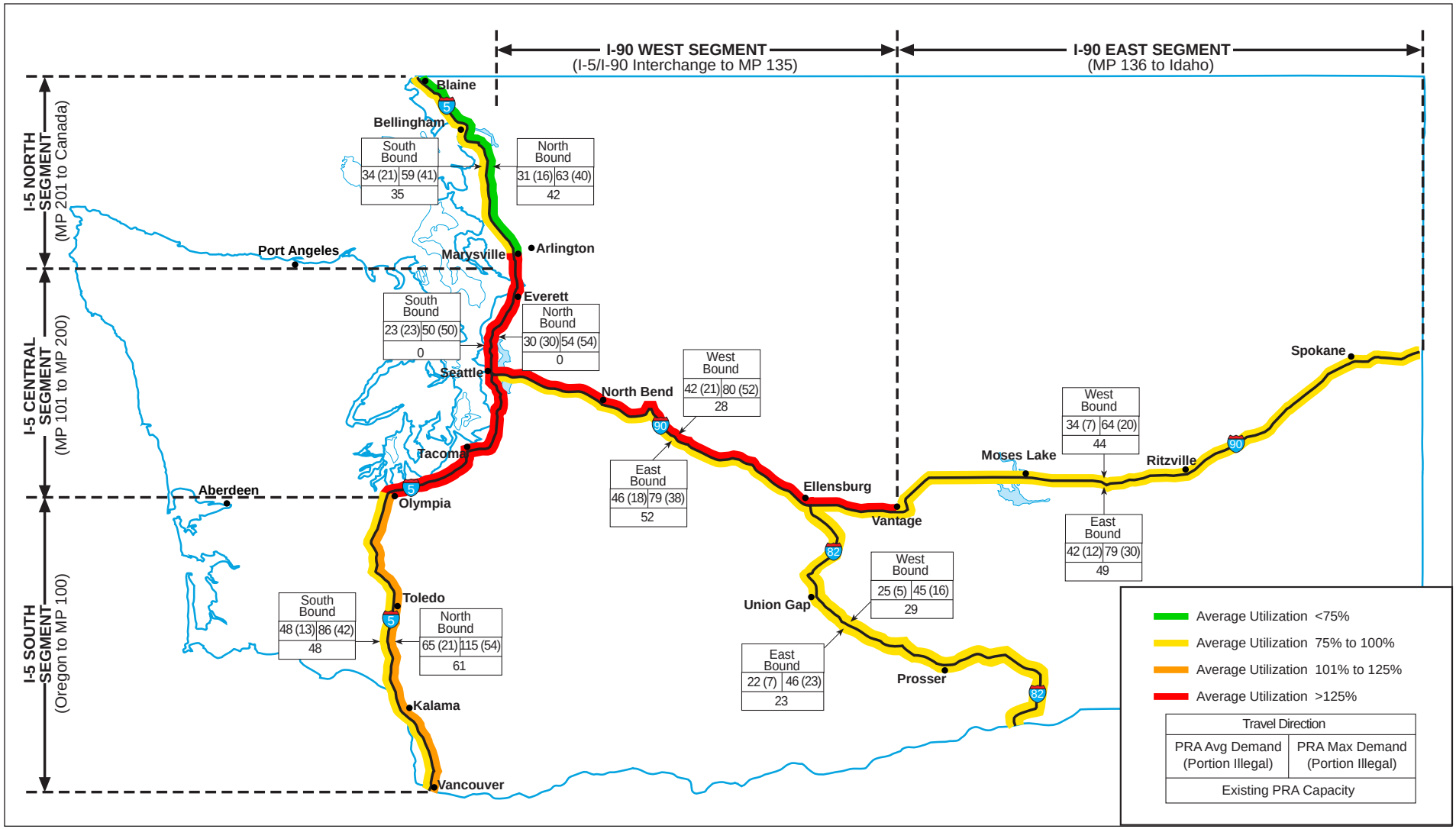
## 3.3 RELATIONSHIP BETWEEN EXISTING SEGMENT AND FACILITY NEEDS

Figure 1 shows the average utilization and average and maximum demand at the corridor level and identifies which highway segments are generally over or under capacity. Figure 2 provides the same information for the individual PRAs. These two graphics need to be considered together; otherwise the nature of the truck parking shortage could be misunderstood. Figure 1 highlights the general area where additional truck parking capacity is needed, and Figure 2 identifies where, within the segment, demand distribution opportunities could exist. It is important to note that the total segment truck parking demand cannot be revealed by adding the individual PRA demands from Figure 2 since this graphic does not include the truck parking demand outside of PRAs (e.g., on ramps, shoulders, chain-up areas, weigh stations, and viewpoints). In other words, the segment demand (from Figure 1) minus the cumulative demand at PRAs (from Figure 2) equals the illegal truck parking demand for that segment that occurs outside of PRAs.

## 3.4 EXISTING ILLEGAL PARKING ALONG THE STUDY CORRIDORS

Exhibit 3 shows the average and maximum number of legally and illegally parked trucks in each segment of the study corridors. This data suggests that trucks park illegally even when legal truck parking is available. For example, when looking at the data for the south segment of I-5 northbound, it shows that there were a total of 65 trucks parked throughout the segment (on average). If all of the 61 legal parking spaces were occupied, there would only be 6 illegally parked trucks. However, there were 21 illegally parked trucks through the segment, which supports the conclusion that trucks park illegally even when legal truck parking is available. Therefore, adding truck parking spaces needs to be carefully considered and may not always be the best solution for eliminating illegal truck parking. Other solutions could include additional highway signs, a trucker's guide or real-time truck parking information (such as variable message signs or a radio station) to inform truck drivers on where there is available and easily accessible truck parking.

Please see the *Why Do Trucks Park Illegally?* section of the Executive Summary for information on illegal truck parking.




**Parametrix** 214-1631-048/02/103 10/18/05 (B)

**Figure 3**
**Existing Truck Parking (Legal and Illegal) by Segment**

# 4. FUTURE TRUCK PARKING CONDITIONS

## 4.1 YEAR 2030 TRUCK PARKING DEMAND AND UTILIZATION BY SEGMENT

Figure 4 summarizes the year 2030 truck parking demand and utilization by corridor segment during the peak (nighttime) period for both public rest areas (PRAs) and commercial truck stops (CTSs). Similar to Figure 1, which illustrates the existing demand and utilization by corridor segment, the direction of travel for each segment is color coded based on average utilization for PRAs. The average and maximum truck parking demand is also shown relative to the segment's existing capacity (i.e., future conditions without improvements). It is important to note that the color coding scale in Figure 4 has changed. Due to the substantial growth in truck parking demand expected by 2030, all corridor segments are expected to be over capacity. Therefore, the color coding scale was modified to show where additional truck parking capacity will be most needed.

As shown on Figure 4, the truck parking demand in 2030 will exceed existing capacity for all corridor segments. Table 9 shows the corridor segments with the highest truck parking utilization.

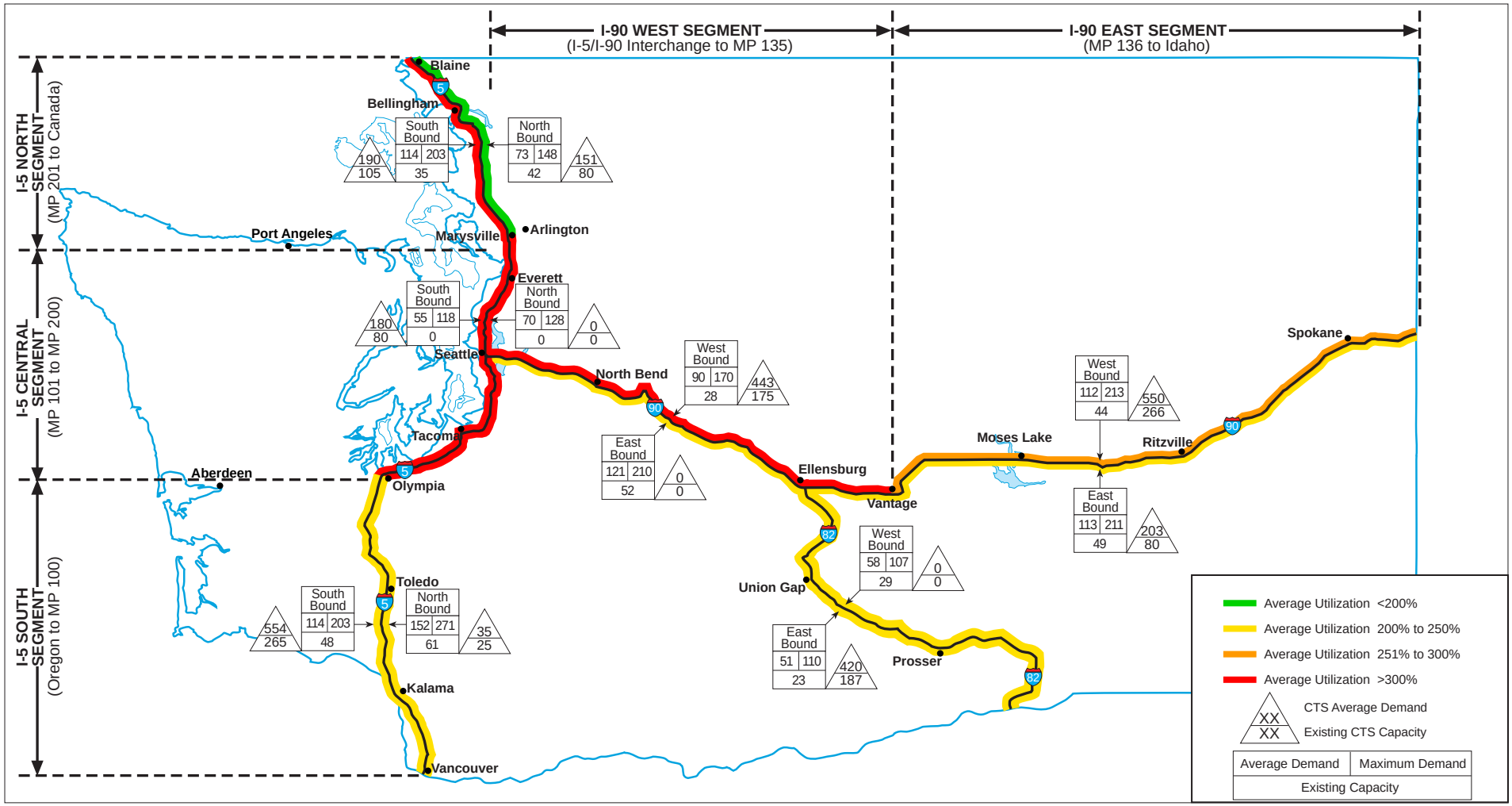
**Table 9. Year 2030 Corridor Segments Over Capacity**

| Corridor | Segment | Direction | Average Utilization (Number of Trucks Over Capacity) | Maximum Utilization (Number of Trucks Over Capacity) |
|---|---|---|---|---|
| I-5 | North | Southbound | 326% (79 trucks) | 580% (168 trucks) |
| I-90 | West | Westbound | 321% (62 trucks) | 607% (142 trucks) |
| I-90 | East | Westbound | 255% (68 trucks) | 484% (169 trucks) |

The increase in truck parking demand is forecasted to be slightly higher on I-90 than I-5 (4.0 versus 3.5 percent, respectively). Thus, truck parking demand along the east segment of westbound I-90 is expected to surpass the demand along the south segment of I-5, which currently has a higher shortage.

Because the central segment of I-5, both northbound and southbound, does not have any legal truck parking at PRAs, the year 2030 utilization rates cannot be calculated. The southbound truck parking demand for this segment is estimated to increase from 23 trucks to 55 trucks on average, and from 50 trucks to 118 trucks during peak times. Northbound truck parking demand in the central segment is estimated to increase from 30 trucks to 70 trucks on average, and from 54 trucks to 128 trucks during peak times.

As shown on Figure 4, truck parking demand will exceed the CTS capacity along the study corridors. Existing truck parking demand at CTSs was grown at the same rate as truck parking demand at PRAs. Additionally, in order to provide a worst-case scenario, it was assumed that no new truck parking spaces would be added between today and the year 2030.




**Parametrix** 214-1631-048/02/103 9/26/05 (B)

**Figure 4**
**Future Year 2030 Nighttime Truck Parking Utilization and Demand by Segment at Public Rest Areas and Commercial Truck Stops**

## 4.2 YEAR 2030 TRUCK PARKING DEMAND AND UTILIZATION BY FACILITY

Similar to Figure 4, the color-coding scale for Figure 5 has been altered to show where additional capacity will be needed most. Figure 5 shows the year 2030 truck parking demand and utilization for individual PRAs during the peak (nighttime) period. Table 10 shows the PRAs with the highest forecasted utilization rates in the year 2030.

**Table 10. Year 2030 Public Rest Areas Over Capacity**

| Public Rest Area | Corridor/Direction | Segment | Average Utilization (Number of Trucks Over Capacity) | Maximum Utilization (Number of Trucks Over Capacity) |
|---|---|---|---|---|
| Scatter Creek | I-5 Northbound | South | 347% (42 trucks) | 553% (77 trucks) |
| Maytown | I-5 Southbound | South | 331% (30 trucks) | 677% (75 trucks) |
| Sprague Lake | I-90 Eastbound | East | 320% (44 trucks) | 520% (84 trucks) |

The weigh station at Silver Lake, located in the central segment of southbound I-5, is forecasted to have an average truck parking demand increase from 13 trucks to 31 trucks, and the maximum demand is forecasted to increase from 26 trucks to 61 trucks. The weigh station at SeaTac, located in the central segment of northbound I-5, is expected to increase its average truck parking demand from 20 trucks to 47 trucks, and the maximum demand is forecasted to increase from 35 trucks to 83 trucks.

Although both the weigh stations at Silver Lake and SeaTac were constructed with adjoining public rest areas, neither of these facilities currently have legal truck parking, and therefore, utilization rates cannot be calculated.

In the year 2030, truck parking demand would exceed capacity for all CTSs along the study corridors. The same 8 CTSs that are currently at capacity on an average night would have the greatest shortages with utilization rates of 200 percent or greater. The average utilization rates and number of trucks over capacity at these facilities are shown in Table 11.

**Table 11. Year 2030 CTSs with 200 percent or greater utilization**

| Commercial Truck Stop | Corridor/Direction | Segment | Average Utilization (Number of Trucks Over Capacity) |
|---|---|---|---|
| Flying J Travel Plaza (Tacoma) | I-5 Southbound | Central | 200% (90) |
| Gee Cee's Truck Stop | I-5 Southbound | South | 225% (187) |
| Seattle East Auto/Truck Plaza | I-90 Westbound | West | 253% (268) |
| Flying J Travel Plaza (Ellensburg) | I-90 Eastbound | West | 253% (123) |
| Pilot Travel Center | I-90 Westbound | West | 253% (136) |
| Broadway Flying J Travel Plaza (Spokane) | I-90 Westbound | East | 250% (3) |
| Horse Heaven Hills Travel Plaza | I-82 Eastbound | NA | 224% (31) |
| Gear Jammers Truck Plaza | I-82 Eastbound | NA | 225% (202) |

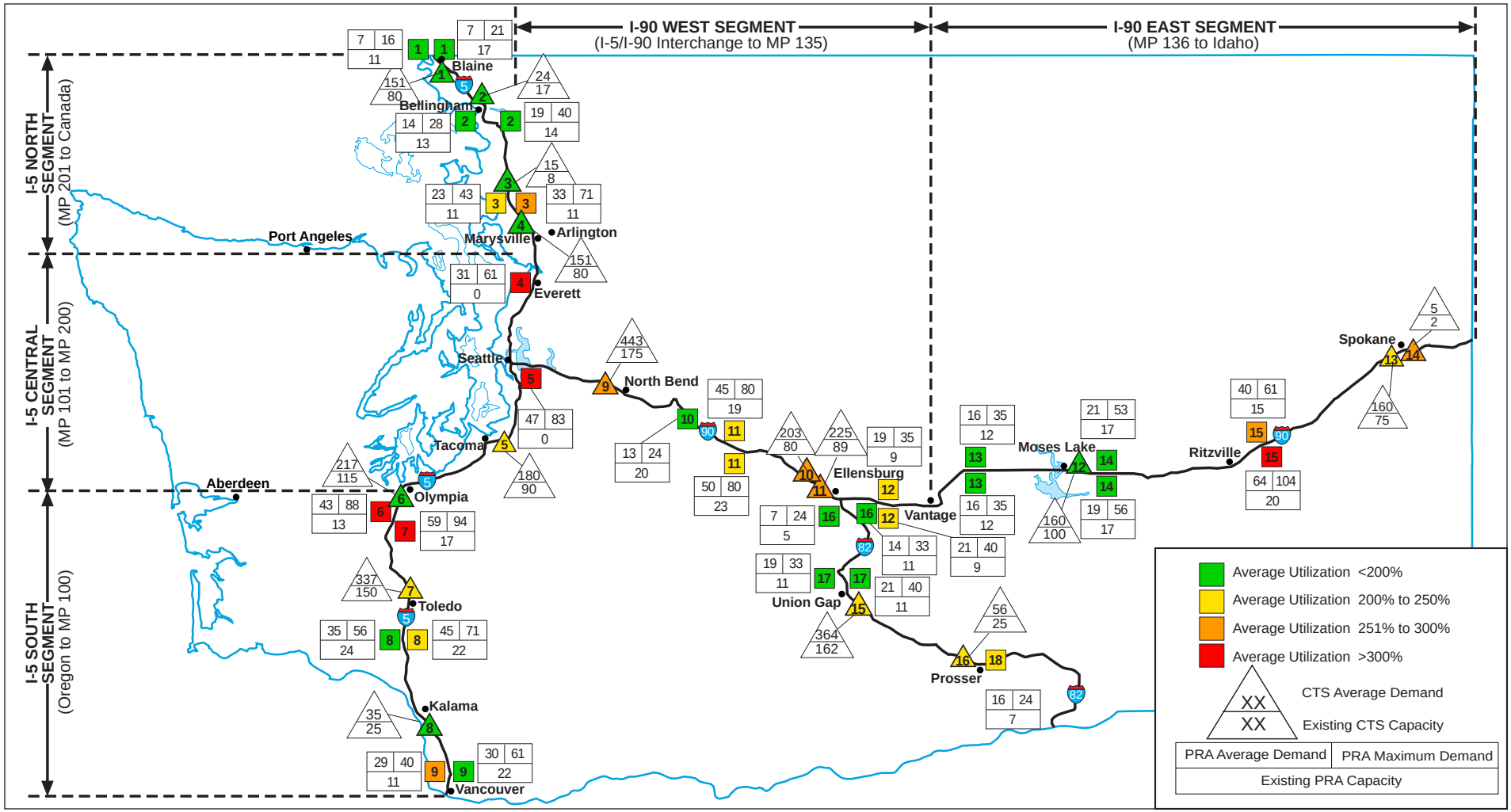
## 4.3 RELATIONSHIP BETWEEN YEAR 2030 SEGMENT AND FACILITY NEEDS

As mentioned previously, three corridor segments currently have truck parking demand that exceeds the segment capacity: the north segment of southbound I-5, south segment of northbound I-5, and west segment of westbound I-90 (see Figure 1). While these segments are forecasted to continue to have some of the highest truck parking demand in 2030, all corridor segments are expected to have truck parking demand that exceeds existing capacity (see Figure 4).

The same general trend is apparent when comparing facility-level truck parking utilization for existing conditions (see Figure 2) and the year 2030 forecasted growth (see Figure 5). Scatter Creek, Maytown, Sprague Lake, Gee Creek, and Smokey Point are expected to experience the highest average truck parking demand (300 percent utilization and higher). With the exception of Custer and Price Creek, all other PRAs are shown to be substantially over existing capacity.

Similar to the relationship between Figures 1 and 2 (see Section 3.3), it is important to consider Figures 4 and 5 together. Figure 4 highlights the magnitude of the future truck parking demand for the whole segment, and Figure 5 identifies where, within the segment, future demand will be the greatest. The total future segment truck parking demand cannot be revealed by adding the individual future PRA demands from Figure 5 since this graphic does not include the future truck parking demand that could occur outside of PRAs.

For the existing conditions, Figure 3 was presented to show the portion of the truck parking demand that represents illegal truck parking within the segment. A similar figure for year 2030 forecasts was not generated since forecasting the illegal truck parking volumes would present misleading results because it is difficult to estimate future truck driver behavior and predict regulatory/administrative changes that could affect the amount of illegal truck parking.




**Parametrix** 214-1631-048/02/103 10/17/05 (B)

N

Public Rest Area

Commercial Truck Stop

1. Yorky's Truck Stop
2. Yorky's Exxon
3. Arlington Fuel Stop
4. Donna's Truck Stop
5. Flying J Travel Plaza #05060
6. Restover Truck Stop
7. Gee Cee's Truck Stop
8. Rebel Truck Stop
9. Seattle-East Auto/Truck Plaza
10. Flying J Travel Plaza
11. Pilot Travel Center #389
12. Ernie's Truck Stop # 9
13. Broadway Flying J Travel Plaza
14. Broadway Truck Stop - Geiger
15. Gear Jammers Truck Plaza
16. Horse Heaven Hills Travel Plaza

| | | | |
|---|---|---|---|
| 1 | Custer | 10 | Price Creek |
| 2 | Bow Hill | 11 | Indian John Hill |
| 3 | Smokey Point | 12 | Rye Grass |
| 4 | Silver Lake | 13 | Winchester |
| 5 | SeaTac | 14 | Schrag |
| 6 | Maytown | 15 | Sprague Lake |
| 7 | Scatter Creek | 16 | MP 7 Scenic View |
| 8 | Toutle River | 17 | Selah Creek |
| 9 | Gee Creek | 18 | Prosser |

**Figure 5**
**Future Year 2030 Nighttime Truck Parking Utilization and Demand at Public Rest Areas and Commerical Truck Stops**

# 5. SUMMARY OF FINDINGS

A number of conclusions can be drawn from the existing and year 2030 truck parking utilization information discussed in Sections 3 and 4.

- There are no PRAs that provide truck parking in the central segment of I-5, which is approximately 200 miles long and has high long-haul truck volumes. Truck parking is limited to one CTS, which has approximately 80 truck parking spaces.
- The south segment of northbound I-5 and west segment of westbound I-90 do not have enough truck parking capacity during the peak period (nighttime). The central segment of I-5 (northbound and southbound) does not have any legal truck parking at public facilities.
- According to the data WSDOT collected at the public rest areas (PRA), five facilities currently have average truck parking demands that consistently exceed capacity:
  - Scatter Creek
  - Maytown
  - Smokey Point
  - Sprague Lake
  - Gee Creek

These five PRAs are consistent with trucker survey results collected by the Washington Trucking Association. Though not over capacity on average, truck parking demand typically nears capacity at Indian John Hill, and the Washington Trucking Association has also identified this PRA with deficient capacity.

- The following 8 CTSs are regularly at capacity on an average night:
  - Flying J Travel Plaza (I-5 near Tacoma)
  - Gee Cee's Truck Stop (I-5 near Toledo)
  - Seattle East Auto/Truck Plaza (I-90 near North Bend)
  - Flying J Travel Plaza (I-90 near Ellensburg)
  - Pilot Travel Center (I-90 near Ellensburg)
  - Broadway Truck Stop (I-90 near Spokane)
  - Gear Jammers Truck Plaza (I-82 near Union Gap)
  - Horse Heaven Hills Travel Plaza (I-82 near Prosser)
- Without added truck parking capacity, all study corridor segments and the majority of PRAs are forecasted to substantially exceed capacity by the year 2030.

# 6. RECOMMENDATIONS

Based on the findings of this study, conclusions drawn in other related studies, and practices implemented by other states facing similar truck parking capacity issues, a set of potential improvement strategies and options have been identified and evaluated to increase truck parking capacity at public rest areas (PRAs) and commercial truck stops (CTSs).

## 6.1 RECOMMENDATIONS FOR INCREASING TRUCK PARKING IN WASHINGTON

Several preliminary recommendations were identified in the technical memorandum, *Truck Parking on I-5, I-90, and I-82 in Washington State* (Appendix B). After continued consultation with WSDOT, other state agencies, and research on projects in other states with similar challenges, nine strategies and improvements were developed and evaluated for further consideration. The strategies described below are not presented in any order of priority or effectiveness.

**Strategy 1. Create new legal truck parking within the north (southbound), central (northbound and southbound), and south (northbound) segments of I-5 and west segment of westbound I-90.**

***Option 1a:*** Construct new PRAs within the identified corridor segments.

***Option 1b:*** Reconfigure select PRAs within the identified corridor segments. PRA reconfiguration could entail a number of treatments that would add truck parking capacity, such as reducing the facility's recreational vehicle and personal vehicle parking spaces to accommodate more truck parking, or expansion of the truck parking into areas currently used for picnicking and other activities.

***Option 1c:*** Construct new limited-feature truck facilities (variation of "Ohio Solution"). This facility would lack typical features found at PRAs, such as picnic areas, but would include restroom facilities.

***Option 1d:*** Allow cross-utilization of the general public parking lot during nighttime hours. Commercial trucks would be allowed to park in designated portions of the general public parking area during designated times. This would require some reconstruction in the general parking areas to accommodate large trucks.

**Strategy 2. Legalize truck parking at non-Port of Entry weigh stations and expand these facilities to accommodate additional truck parking.**

**Strategy 3. Implement public-private partnerships that would encourage new development of CTSs where PRAs are significantly over capacity.**

***Option 3a:*** Provide free signage along interstate highways. Similar to the "Interstate Oasis" program implemented in Vermont and Utah. Free advertising for existing CTSs was exchanged for truck parking and other qualifying criteria (such as 24-hour service).

***Option 3b:*** Lease WSDOT right of way/property at low rates to provide CTS services and amenities. This option would encourage commercial development based on low lease rates and proximate location to the mainline. Services and amenities typically offered at existing CTSs would be mandatory, and additional truck parking support facilities could also be required.

***Option 3c:*** Provide low-interest loans for new development. Services and amenities typically offered at existing CTSs (e.g., truck parking, fuel, electrification, showers, food/convenience store) would be required. Loans could be used for any costs related to property acquisition, construction of the facility, or other business start-up related costs.

**Strategy 4. Implement public-private partnerships that would provide financial aid for increasing capacity at existing CTSs.**

***Option 4a:*** Subsidize operational costs. Operational costs for existing CTSs would be reduced in the form of grants and/or loans. This funding could also be restricted to a one-time opportunity or could be reapplied based on compliance with certain criteria. This option could be particularly relevant in urban areas where land value is typically higher, or where operational costs outweigh revenue.

***Option 4b:*** Provide low-interest loans for expansion-related costs. Although some CTSs may generate sufficient revenue, the business lacks the initial cost to expand the facility, despite the available land and truck parking demand. Low-interest loans would fund acquisition of adjacent land to provide additional truck parking.

**Strategy 5. Develop shared-use parking agreements with existing parking lot owners.**

***Option 5a:*** Provide nighttime-only parking at commercial parking lots. This option would identify large commercial parking lots that are underutilized during nighttime hours in close proximity to the Interstate highway. Parking lots for consideration could include those belonging to malls, shopping centers, or other large commercial enterprises (e.g., movie theaters, large retail stores).

***Option 5b:*** Provide nighttime-only parking at public park and ride lots. Several public park and ride lots are underutilized during the nighttime hours and are located in close proximity to the Interstate highways. WSDOT would coordinate with local jurisdictions and transit agencies to enter into agreements for truck parking usage.

In addition to the strategies described above that would add truck parking capacity, three other strategies were identified that could more evenly distribute truck parking demand along the study corridors and reduce illegal truck parking in some areas. These strategies are described below.

**Strategy 6. Implement an information and communication program that provides current parking conditions at PRAs and CTSs; allow truck drivers to query specific facilities.**

***Option 6a:*** Encourage CB or cellular phone use to communicate where legal truck parking is or is not available.

***Option 6b:*** Intelligent Transportation Systems solutions could include the implementation of a wide variety of technologies, including new highway signs, advisory radio broadcasts (periodic reports through an existing radio station or dedicated radio station), real-time facility parking inventory system, or real-time communication system such as 511 Traveler Information (WSDOT has recently submitted a grant proposal that would investigate a program similar to 511 Traveler Information).

***Option 6c:*** Produce and distribute a trucker's guide. This guide would contain the location, distance (mileage and time travel) from the mainline, and directions to every PRA and CTS in Washington State. Other features, such as services and amenities, peak period, peak season, percent typically full, and other information could also be included.

**Strategy 7. More clearly designate truck parking from recreational parking at all PRAs. This strategy could include additional signage or new signage that explicitly separates commercial truck parking versus general public parking. Parking areas could also be re-striped.**

**Strategy 8. Coordinate with local and state patrol to enforce current truck parking laws by consistently citing truckers parked along roadsides, ramps, and other illegal areas.**

## 6.2 TRUCK PARKING SOLUTIONS FROM OTHER STATES

Several states have faced truck parking capacity challenges and have implemented solutions similar to the improvement strategies identified in this report.

### 6.2.1 Construction of Limited-Feature Facilities ("Ohio Solution")

The Ohio Department of Transportation (DOT) converted a closed PRA into a new, limited-feature commercial truck-only parking facility. As shown in Figure 6, the area previously used for general public parking was removed, and the site was redesigned to accommodate the maximum number of truck parking spaces. This facility has thus far been deemed a success, and the Ohio DOT has identified approximately 12 other sites (all closed PRAs) that are planned for future reconstruction to truck-only facilities.

A variation of the Ohio Solution was evaluated as a potential strategy improvement under Option 1c (see Section 6.1). Given the existing truck parking demand and peak utilization rates at PRAs, Option 1c would not convert existing PRAs to truck-only facilities, but would require construction of new truck-only facilities in selected areas. Since Option 1c would include right of way purchase and new construction, this strategy would cost more than Ohio's conversion of the closed PRA, which cost approximately $1.1 million.

### 6.2.2 Interstate Oasis Program

Vermont and Utah have developed public-private partnerships with interchange businesses to increase truck parking capacity in the face of some PRA closures. These "Interstate Oasis" facilities are required to meet a set of criteria developed by the DOT, which typically included proximity to the mainline/interchange, free truck parking, restrooms, 24-hour service, and a space reserved for a pamphlet stand. The Interstate Oasis program is most similar to a hybrid of Strategies 4 and 5 described in Section 6.1.

### 6.2.3 Legalized Truck Parking at Weigh Stations

According to the Study of Adequacy of Commercial Truck Parking Facilities (FHWA June 2002), the following states have legalized overnight truck parking at weigh stations: Connecticut, Georgia, Florida, Idaho, Indiana, Kentucky, Mississippi, Montana, New Mexico, New York, and South Dakota. Legalizing commercial truck parking at weigh stations and expanding these facilities to accommodate more truck parking was identified as an improvement under Strategy 2 in Section 6.1, and a schematic drawing of a reconfigured weigh station with legal truck parking is shown in Figure 7.

Washington State Patrol provided a number of important design considerations that would need to be addressed should this strategy be selected for implementation, including:

- Only one ramp should be provided to minimize the potential for driver confusion and accidental bypass of truck scales. Lane(s) leading to the parking area should be barrier-separated from the lane(s) leading to the scales so that permitted trucks can bypass the scales.
- The parking area should be separate from the scales and inspection area to minimize interference with weigh station operations and safety.

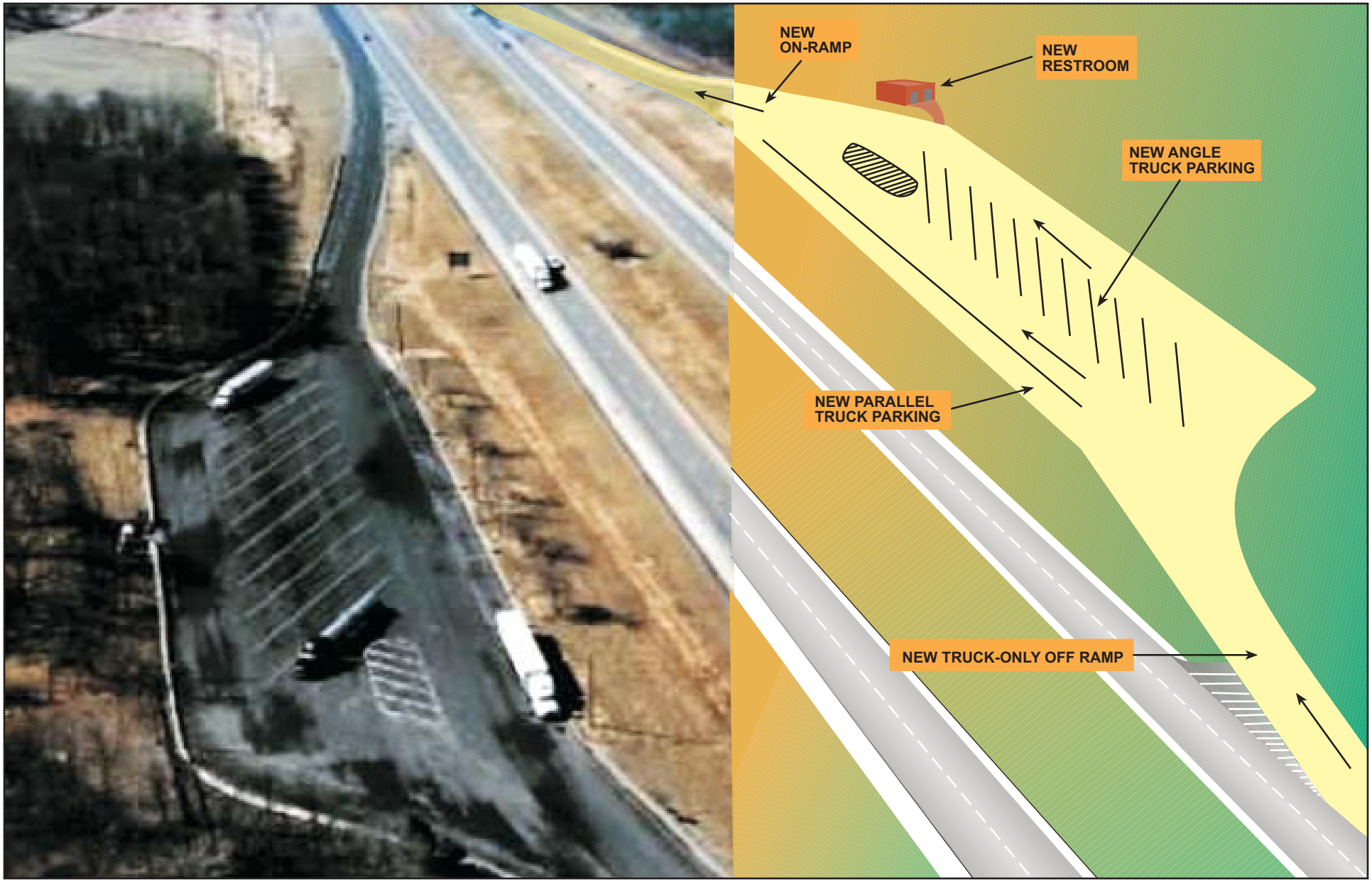



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**Figure 6**
**Truck-Only Facility**
**"Ohio Solution"**

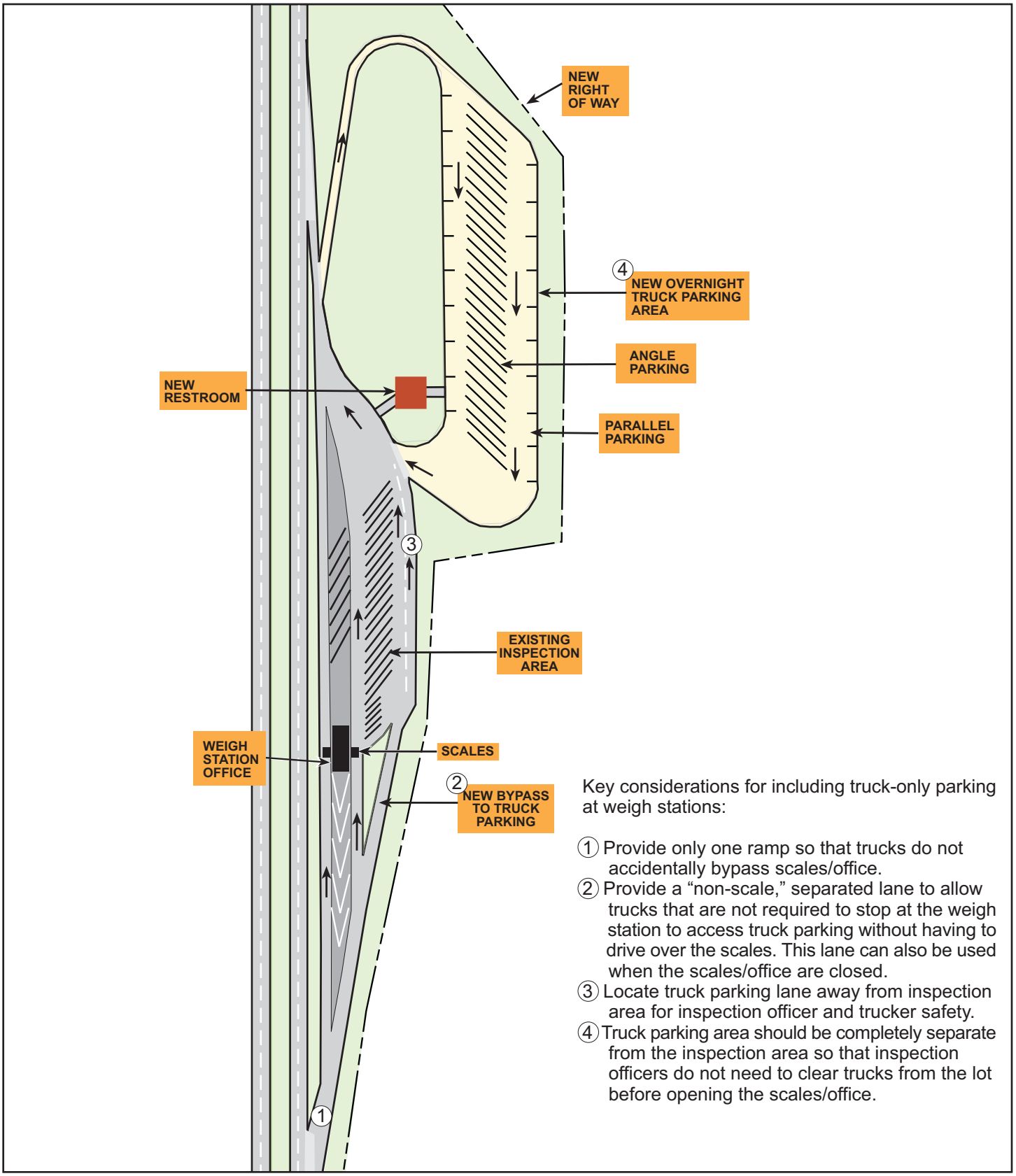


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**Figure 7**
**Existing Weigh Station Expanded for Truck Parking**

### 6.2.4 Public Rest Area Reconfiguration

According to the Study of Adequacy of Commercial Truck Parking Facilities (FHWA June 2002), 35 states have recently reconfigured or are in the process of reconfiguring PRAs to expand the truck parking capacity. An additional five states will be taking such action in the near future. This general improvement strategy option is listed as Option 1b in Section 6.1. Figures 8 and 9 show potential reconfiguration and expansion options.

## 6.3 COMPARISON OF IMPROVEMENT STRATEGIES AND OPTIONS

### 6.3.1 Evaluation Criteria

A set of criteria was developed to evaluate the feasibility and effectiveness of the strategies and improvements described above. This set of criteria also identified potential environmental, political, and implementation challenges associated with each option. This evaluation was developed during the planning process; after some or all of these strategies are selected for implementation, greater detail will be described and disclosed during the preliminary engineering and environmental permitting phases of each project. Mitigating measures would also be developed later during the environmental permitting process.

Evaluation criteria were assessed independently using a similar scale to provide a qualitative assessment of each strategy. The magnitude of potential benefits and disadvantages were not weighted.

**Added Parking Capacity.** The amount of added parking capacity associated with each strategy and option was based on existing CTS and PRA truck parking capacities, observed parking conditions, feasibility of shared-use parking areas within existing PRAs, and typical sizes of similar facilities in other states. The assumptions used to calculate the amount of added capacity are further described in Improvement Strategies and Options Matrix – Added Capacity Assumptions (Appendix D).

**Safety.** Trucker and general public safety were considered for each of the strategies and improvements. Based on safety and access concerns, Washington State prohibits parking within the right of way (roadway, shoulder, ramps, median, etc.) of interstate highways (Revised Code of Washington 47.52.120(e)).

**Cost.** Cost estimates for improvement strategies related to new programs, public-private partnerships, and policy changes were not calculated because the administrative costs of developing and implementing such strategies would vary considerably depending on the complexity of the project. Strategies with construction-related costs are more easily quantifiable and were developed for each option. These conceptual estimates were based on a general set of assumptions (see Appendix E), and site-specific estimates should be calculated prior to implementation.

**Wetlands and Critical Areas.** Washington State is divided by the Cascade Mountain range, and the ecological differences on either side vary considerably. In addition to the larger geographical differences, development in rural areas typically has a higher potential for impacting wetlands than urbanized areas. Other critical areas, such as unstable soils and steep slopes, could warrant further investigation under local critical areas ordinances and could increase the level of effort needed to implement the improvement.

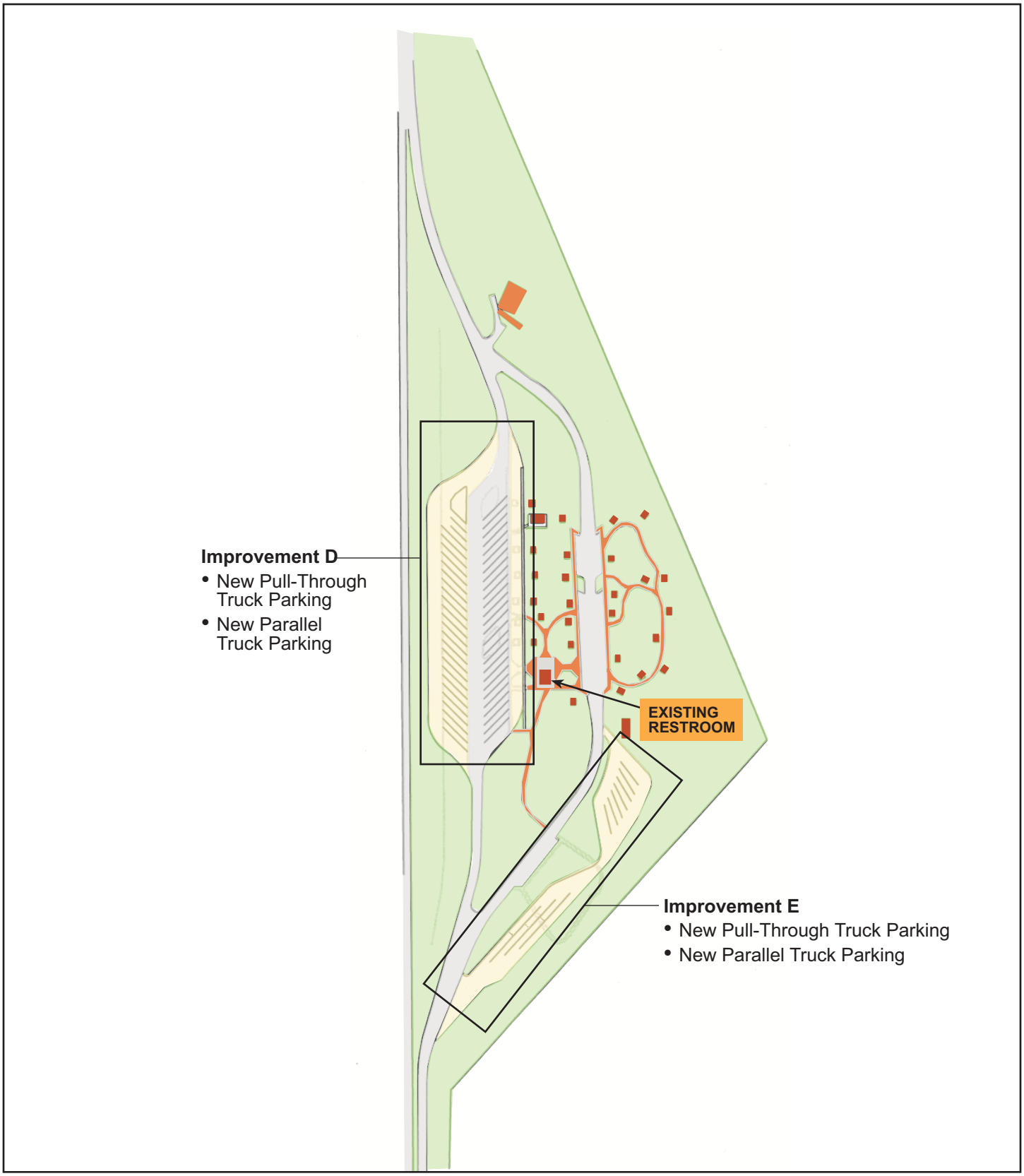


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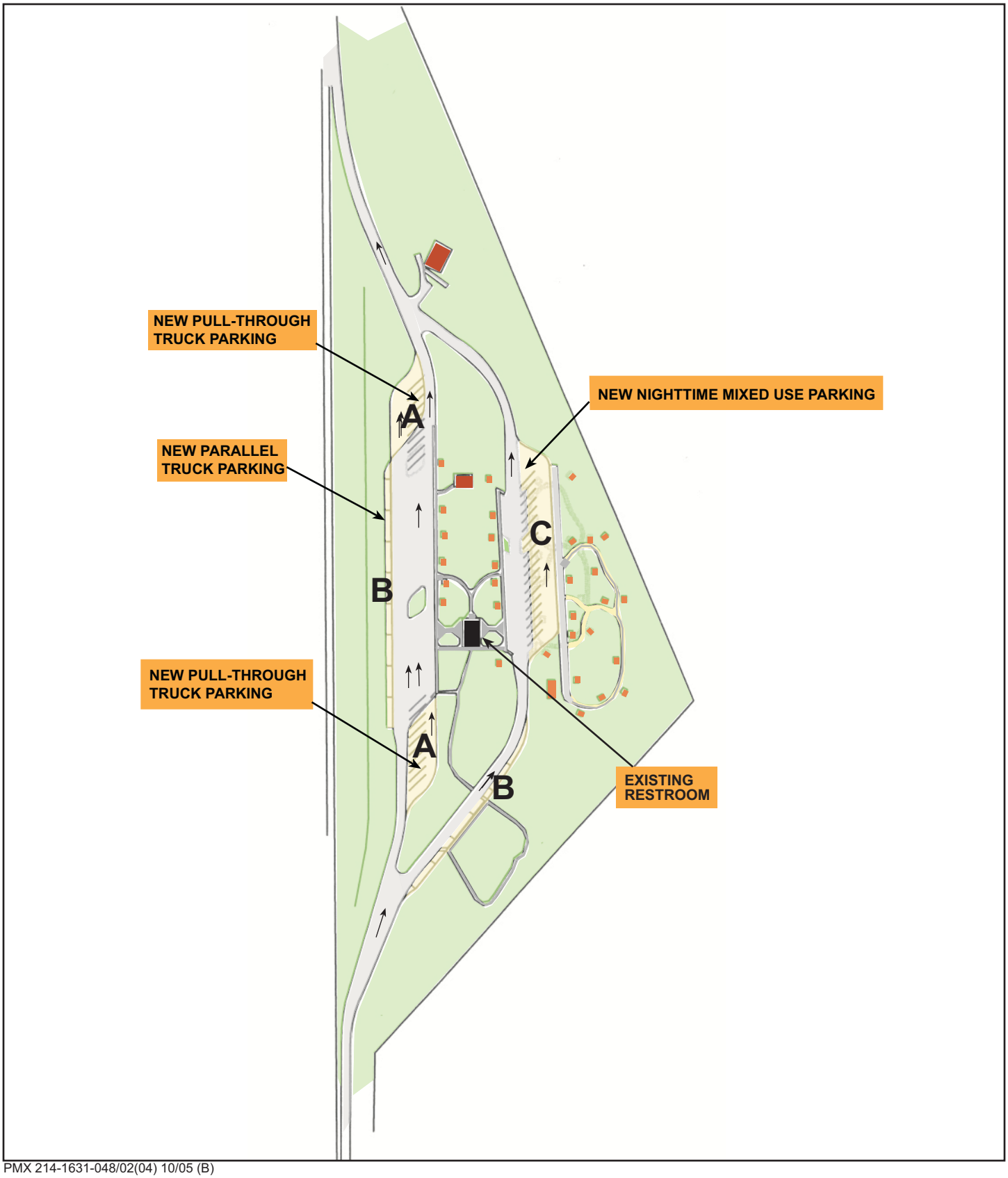
**Figure 8**
**Expanded Truck Parking Options at PRAs**

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Improvements

A New Pull-Through Truck Parking
B New Parallel Truck Parking
C New Nighttime Mixed Use Parking

**Figure 9**
**Mixed Use Parking Option at PRAs**

**Air Quality.** Although none of the strategies or options would add to the volume of truck trips or delay, consolidating truck parking, construction of new facilities, and construction activities related to PRA reconfiguration could slightly increase localized emissions and fugitive dust. As mentioned previously, air quality as it relates to commercial truck idling is an important issue facing both the WSDOT and Ecology.

**Water Quality.** Water quality could be affected by construction activities (sediment transport), increases in pollutant-generating impervious surface area, or by localized truck parking (stormwater runoff).

**Additional Right of Way.** Acquisition of additional right of way substantially adds to the project cost. Additional right of way requirements also increase the potential of other environmental effects.

**Implementation Issues.** Implementation issues are typically related to logistical challenges that arise during the development or practice of the improvement. Examples of implementation issues could include Washington State Patrol's ability to enforce PRA and truck parking regulations, the need to create a task team and formalized program to implement the strategy, additional challenges related to extending the duration of a project, and the willingness or ability of truck drivers to use the product or service.

**Policy and Regulation Changes.** Some strategies would require minor refinements to state or local regulations. Other strategies could require redistribution or adjustments to funding allocation.

**Other Advantages/Disadvantages.** This criterion was identified to capture unique advantages or disadvantages associated with improvements. For example, Strategies 3 and 4 encourage CTS development and expansion. Shifting the burden of truck parking is a benefit related to these strategies since private monies would be the main source of funding and additional truck parking capacity would be added. This shift in responsibility is unique to Strategies 3 and 4, but not applicable to other improvement alternatives.

### 6.3.2 Matrix Evaluation

Each of the improvement strategies and options were reviewed with respect to the evaluation criteria described above. Table 12 illustrates the effectiveness and potential difficulties associated with each improvement. This color-coded matrix is based on the qualitative and quantitative assessments included in Appendix C. It is important to recognize that "grades" presented below are standardized across each criterion (e.g., green represents a benefit and red represents a potential adverse effect), and the benefits and potential adverse effects are not weighted.

### 6.3.3 Cost Estimates

Two types of conceptual costs estimates are presented in Appendix E: overall project costs and costs per parking space. The overall project costs provide an estimate of how much a particular strategy would cost to implement, and includes costs associated with the direct cost of the parking area as well as the costs associated with other necessary facility elements (e.g., new ramps, restroom facility, relocation of picnic area) that are not directly associated with the truck parking area ("fixed costs"). Only strategies that entail construction of a new parking area (e.g., new PRA, "Ohio Solution," and new parking area at weigh stations) have fixed costs. Conversely, strategies that involve expansion of an existing parking area do not have fixed costs and therefore only costs per space were estimated. Disclosing both types of conceptual cost estimates is necessary since the cost per space for strategies with fixed costs

would be substantially skewed (higher) since the fixed costs would need to be distributed among the costs per space.

Conceptual cost estimates were calculated for improvements with construction related activities, which included Option 1b (PRA reconfiguration), Option 1c (construction of truck-only facilities), and Strategy 2 (legalization of truck parking at weigh stations and expansion). Cost estimates were prepared for a representative facility and would differ depending on the individual site selected for implementation. Cost estimates for Option 1b has been divided into areas A through E, which correlate to the design reconfiguration areas shown in Figures 8 and 9. Conceptual cost estimates were not calculated for Option 1a because the study objective was to identify ways to increase truck parking and while constructing a new PRA would increase truck parking, a more targeted solution would be Option 1c (construction of truck-only facilities).

For Option 1b, truck parking areas would be expanded, but would still remain within the footprint of the existing facility and, therefore, would likely have very low associated fixed costs. Accordingly, the price per stall is virtually equal to the total project cost divided by the amount of truck parking spaces that would be added.

Unlike Option 1b, Option 1c entails construction of a new facility and Strategy 2 involves construction of a new parking area. Therefore, Option 1c and Strategy 2 would have substantially higher associated fixed costs (cost of new ramps, restroom facilities, circulation paths, etc.). To standardize cost estimates, the price per stall is calculated by subtracting the fixed costs from the project costs, then dividing by the amount of truck parking stalls added. Table 13 provides a summary of the conceptual project costs and prices per stall.

These conceptual cost estimates are not inclusive of right of ways needs or environmental mitigation since these costs would vary substantially depending on site selection. Additional cost estimate assumptions and detailed conceptual cost estimate breakdowns are provided in Appendix E.

As stated in Section 6.3.1, cost estimates for improvement strategies related to new programs, public-private partnerships, and policy changes were not calculated because the administrative costs of developing and implementing such strategies would vary considerably depending on the complexity of the project.

## Table 12. Matrix Evaluation of Potential Improvement Strategies and Options

| | | Most added capacity | Improve | Low | None / unlikely | None / unlikely | None / unlikely | None / unlikely | None / unlikely | None / unlikely | Most advantageous | Least disadvantageous |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Moderate | Same | Moderate | Potential | Potential | Potential | Potential | Potential | Potential | Moderate | Moderate |
| | | Least added capacity | Worsen | High | Substantial | Substantial | Substantial | Substantial | Substantial | Substantial | Least advantageous | Most disadvantageous |
| | | | | | Potential Impacts | | | | | | | |
| Strategy Option | Improvement Description | Potential Added Capacity | Safety | Cost | Wetlands / Critical Areas | Air Quality | Water Quality | Additional Right of Way Required | Implementation Issues | Policy / Regulation Changes | Other Advantages | Other Disadvantages |
| 1 | Create new legal truck parking within selected corridor segments | | | | | | | | | | | |
| 1a | Construct new PRA(s) | | | | | | | | | | | |
| 1b | Reconfigure / expand existing PRA(s) | | | | | | | | | | | |
| 1c | Construct new truck-only parking areas (variation of "Ohio Solution") | | | | | | | | | | | |
| 1d | PRA nighttime cross utilization | | | | | | | | | | | |
| 2 | Legalize truck parking at weigh stations and expand the facility | | | | | | | | | | | |
| 3 | Public-private partnerships that encourage new CTS development | | | | | | | | | | | |

**Table 12. Matrix Evaluation of Potential Improvement Strategies and Options (continued)**

| | | Most added capacity | Improve | Low | None / unlikely | None / unlikely | None / unlikely | None / unlikely | None / unlikely | None / unlikely | Most advantageous | Least disadvantageous |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Moderate | Same | Moderate | Potential | Potential | Potential | Potential | Potential | Potential | Moderate | Moderate |
| | | Least added capacity | Worsen | High | Substantial | Substantial | Substantial | Substantial | Substantial | Substantial | Least advantageous | Most disadvantageous |
| | | | | | Potential Impacts | | | | | | | |
| Strategy Option | Improvement Description | Potential Added Capacity | Safety | Cost | Wetlands / Critical Areas | Air Quality | Water Quality | Additional Right of Way Required | Implementation Issues | Policy / Regulation Changes | Other Advantages | Other Disadvantages |
| 3a | Provide free signage along Interstate highways | | | | | | | | | | | |
| 3b | Lease WSDOT property to CTSs at low rates | | | | | | | | | | | |
| 3c | Provide low-interest loans for development | | | | | | | | | | | |
| 4 | Public-private partnerships that provide financial aid for increasing CTS capacity | | | | | | | | | | | |
| 4a | Subsidize CTS operational costs | | | | | | | | | | | |
| 4b | Provide low-interest loans for expansion-related costs | | | | | | | | | | | |
| 5 | Shared-use agreements with existing parking lot owners | | | | | | | | | | | |

**Table 12. Matrix Evaluation of Potential Improvement Strategies and Options (continued)**

| Strategy Option | Improvement Description | Potential Added Capacity | Safety | Cost | Potential Impacts: Wetlands / Critical Areas | Potential Impacts: Air Quality | Potential Impacts: Water Quality | Additional Right of Way Required | Implementation Issues | Policy / Regulation Changes | Other Advantages | Other Disadvantages |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Most added capacity | Improve | Low | None / unlikely | None / unlikely | None / unlikely | None / unlikely | None / unlikely | None / unlikely | Most advantageous | Least disadvantageous |
| | | Moderate | Same | Moderate | Potential | Potential | Potential | Potential | Potential | Potential | Moderate | Moderate |
| | | Least added capacity | Worsen | High | Substantial | Substantial | Substantial | Substantial | Substantial | Substantial | Least advantageous | Most disadvantageous |
| 5a | Provide nighttime-only parking at commercial parking lots | | | | | | | | | | | |
| 5b | Provide nighttime-only parking at public park and ride lots | | | | | | | | | | | |
| 6 | Communication program that provides parking conditions | | | | | | | | | | | |
| 6a | Encourage CB/cell phone use to learn about parking conditions | | | | | | | | | | | |
| 6b | ITS solutions: new highway signs, radio broadcasts, real-time parking | | | | | | | | | | | |
| 6c | Produce and distribute a trucker guide | | | | | | | | | | | |
| 7 | More clearly designate truck parking | | | | | | | | | | | |
| 8 | Encourage enforcement of current truck parking laws | | | | | | | | | | | |

**Table 13. Summary of Conceptual Cost Estimates Per Strategy/Option**

| Strategy/Option | Amount of Added Capacity | Project Cost | Price Per Stall |
|---|---|---|---|
| Option 1b - Area A | 18 truck spaces | $ 540,890 | $ 30,049 |
| Option 1b - Area B | 18 truck spaces | $ 607,172 | $ 33,732 |
| Option 1b - Area C | 18 truck spaces | $ 849,229 | $ 47,179 |
| Option 1b - Area D | 26 truck spaces | $ 1,512,763 | $ 58,183 |
| Option 1b - Area E | 14 truck spaces | $ 1,048,738 | $ 74,910 |
| Option 1c | 16 truck spaces | $ 3,817,228 | $ 51,448 |
| Strategy 2 | 52 truck spaces | $ 3,517,958 | $ 66,976 |

### 6.3.4 Geographic Applicability

Several of the improvement strategies evaluated (e.g., PRA parking lot cross utilization, legalizing truck parking at non-Port of Entry weigh stations, changing time limit restrictions) would generally be applicable along any of the study corridors. Other options, however, would be most appropriate in specific areas.

Construction of new PRAs or expansion of existing PRAs within the central segment of I-5 would require use of WSDOT right of way and/or require acquisition of additional private property, which would be expensive. Deviations to facility design standards could also be necessary if adequate right of way is not available. Furthermore, use of additional property for new facility construction or existing facility expansion could increase the potential for other adverse effects, such as impacts to wetlands and other critical areas. I-5 also has higher traffic volumes compared to I-90 and I-82, and construction activities along this corridor could result in higher traffic impacts during construction.

The process of providing financial aid to CTSs for new development or expansion would generally be similar statewide. However, since new or expanded CTSs would require additional property, project costs and potential environmental effects could be more pronounced in some areas.

The process of entering shared-use agreements with public or private property owners of existing parking lots would typically be equal among different sites. However, some areas may have existing parking lots closer to the mainline than others and would be more practical. Land values could also affect the amount of compensation requested from the property owner. Some parking areas could need pavement reinforcement to accommodate the weight of the trucks, which would also affect project costs.

# 7. NEXT STEPS

In addition to evaluating the benefits and potential disadvantages of each strategy and option, several other factors should be considered to assess the feasibility and level of effort necessary to implement selected improvements. Table 14 provides a summary of the agencies and actions that would likely be required to implement each improvement strategy and option.

**Table 14. Likely Implementing Agencies and Actions**

| Option | Improvement Description | Implementing Agency | Other Participating or Permitting Agencies | Steps/Actions | Approximate Schedule |
|---|---|---|---|---|---|
| **1** | Create new legal truck parking within selected corridor segments | WSDOT | Local jurisdictions, WTA, Ecology | Identification of potential sites, site selection, preliminary design, environmental review, final design, construction | 6 months-4 years |
| **1a** | Construct new PRA(s) | WSDOT | Local jurisdictions, WTA, Ecology | Identification of potential sites, site selection, preliminary design, environmental review, final design, construction | 4 years |
| **1b** | Reconfigure/expand existing PRA(s) | WSDOT | Local jurisdictions, WTA, Ecology | Identification of potential sites, site selection, preliminary design, environmental review, final design, construction | 1-2 years |
| **1c** | Construct new truck-only parking areas (variation of "Ohio Solution") | WSDOT | Local jurisdictions, WTA, Ecology | Identification of potential sites, site selection, preliminary design, environmental review, final design, construction | 2-4 years |
| **1d** | PRA nighttime cross utilization | WSDOT | WTA | Identification of potential sites, site selection, replace signage, re-striping, notify general public | 6-12 months |
| **2** | Legalize truck parking at weigh stations and expand the facility | Washington State Patrol | WSDOT, WTA, State House and Senate | Change legislation, site selection, signage, striping | 1-2 years |
| **3** | Public-private partnerships that encourage new CTS development | WSDOT | WTA, NATSO, Private developers, local jurisdictions | Initialize planning effort to develop program, allocate funds, identify potential participants, coordinate with existing businesses | 6-24 months |
| **3a** | Provide free signage along Interstate highways | WSDOT | WTA, NATSO, Private developers, local jurisdictions | Potential change to Interstate signage policies, coordinate with businesses | 6-24 months |
| **3b** | Lease WSDOT property to CTSs at low rates | WSDOT | WTA, NATSO, Private developers, local jurisdictions | Initialize planning effort to develop program, allocation of funds, identify potential participants, coordinate with businesses | 6-12 months |

**Table 14. Likely Implementing Agencies and Actions (continued)**

| Option | Improvement Description | Implementing Agency | Other Participating or Permitting Agencies | Steps/Actions | Approximate Schedule |
|---|---|---|---|---|---|
| 3c | Provide low-interest loans for development | WSDOT | WTA, NATSO, Private developers, local jurisdictions | Identification of potential participants, coordinate with businesses | 6-12 months |
| 4 | Public-private partnerships that provide financial aid for increasing CTS capacity | WSDOT | WTA, NATSO, Private developers, local jurisdictions | Identification of potential participants, coordinate with businesses | 6-12 months |
| 4a | Subsidize operational costs | WSDOT | WTA, NATSO, Private developers, local jurisdictions | Identification of potential participants, coordinate with businesses | 6-12 months |
| 4b | Provide low-interest loans for expansion-related costs | WSDOT | WTA, NATSO, Private developers, local jurisdictions | Identification of potential participants, coordinate with businesses | 6-12 months |
| 5 | Shared-use agreements with existing parking lot owners | WSDOT | WTA, local jurisdictions, transit agencies | Identify potential sites, site selection, coordinate with property owners, environmental review, install signing, striping, and pavement reinforcement if needed | 1-2 years |
| 5a | Provide nighttime-only parking at commercial parking lots | WSDOT | WTA, local jurisdictions | Identify potential sites, site selection, coordinate with property owners, environmental review, install signing, striping, and pavement reinforcement if needed | 1-2 years |
| 5b | Provide nighttime-only parking at public park and ride lots | WSDOT | WTA, local jurisdictions, transit agencies | Identify potential sites, site selection, coordinate with property owners, environmental review, install signing, striping, and pavement reinforcement if needed | 1-2 years |

**Table 14. Likely Implementing Agencies and Actions (continued)**

| Option | Improvement Description | Implementing Agency | Other Participating or Permitting Agencies | Steps/Actions | Approximate Schedule |
|---|---|---|---|---|---|
| **6** | Communication program that provides parking conditions | WSDOT | WTA, NATSO | Further evaluate each technology, select technology, install system, coordinate with businesses | 6-24 months |
| **6a** | Encourage CB/cell phone use to learn about parking conditions | WSDOT | WTA, NATSO | Develop/install parking inventory system | 6-12 months |
| **6b** | ITS solutions: new highway signs, radio broadcasts, real-time parking | WSDOT | WTA, NATSO, USDOT, FHWA, FCC | Further evaluate each technology, select technology, install system, coordinate with businesses | 6-24 months |
| **6c** | Produce and distribute a trucker guide | WSDOT | WTA, NATSO | Develop planning effort to identify and characterize existing public and private facilities, identify content of guide, document services, amenities, directions etc. distribute to truckers. | 6-12 months |
| **7** | More clearly designate truck parking | WSDOT | WTA | Modify signage, re-striping | 2-4 months |
| **8** | Encourage enforcement of current truck parking laws | Washington State Patrol | WTA | Coordinate with Washington State Patrol to develop a monitoring plan | 2 months |

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# APPENDIX A

## Data Collection Efforts Technical Memorandum

# APPENDIX B

## Truck Parking on I-5, I-90, and I-82 in Washington State
## Technical Memorandum

# APPENDIX C

## Improvement Strategy Evaluation Matrices

# APPENDIX D

## Assumptions for Added Capacity

# APPENDIX E

## Conceptual Cost Estimates and Assumptions

# APPENDIX F

## Air Quality